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GASTRO-INTESTINAL ALLERGY

IV. THE LEUKOPENIC INDEX AS A METHOD OF SPECIFIC DIAGNOSIS OF ALLERGENS CAUSING PEPTIC ULCER

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The introduction of the leukopenic index as a method of allergic diagnosis is due to the work of Vaughn[1] on the effect of milk on allergic individuals during the performance of tests for liver function according to the colloidoclastic crisis test of Widal, Abrami and Iancovesco, which is dependent on a fall in blood pressure, a fall in the total leukocyte count, and a prolonged clotting time after the administration of 200 cc. of milk. The pertinent observation was that milk did cause a leukopenia in those patients subsequently found to be sensitive to milk. By repeated tests on a known allergic patient who knew by experience that certain foods were capable of reproducing clinical symptoms on each occasion, the leukocyte response to compatible and to incompatible foods was studied. Those foods producing allergic symptoms were likewise able to depress the total leukocyte count, while compatible foods were in general followed by a rise in the total count. In this way a new method of allergic diagnosis came into being.

Rinkel,[2] in the attempt to relieve an intractable asthmatic patient who gave a negative skin test, made a study of the leukocyte response to foods in that individual. He found that three foods alone produced a positive balance and that all others tested depressed the total leukocyte count. Reasoning that a positive balance indicated compatible foods and that a negative balance indicated allergens, the patient was limited to a diet composed exclusively of those foods which were followed by a digestive leukocytosis. The result of this test diet was a cessation of symptoms after a trial of three days. The importance of this experiment being appreciated, the method was then employed on a large series of patients, with excellent results.

This method of diagnosis has been used with success in several types of allergy; namely, asthma, allergic headache, hypersensitive rhinitis, and gastro-intestinal allergies of various types. The method, though admittedly tedious, appears to be accurate to a high degree. Besides its accuracy, which alone is of great value, it is also helpful in those persons who, though suspected of being allergic, are test negative, and in that group of allergic individuals who react to everything for which they are tested. Both types can, of course, be managed by test diets and food diaries, provided proper cooperation can be maintained over a long period of time. The food diary is a boon at all times, but delayed and accumulative reactions are at times difficult to recognize. A more accurate and expeditious method of recognizing this type of allergen is to be welcomed. Unfortunately, many gastro-intestinal reactions are entirely subjective and their recognition frequently depends on the acuity of the patient. Poor results may at times be traced to faulty interpretation rather than to poor cooperation.

The idea that peptic ulcer in many instances is an expression of anaphylaxis on the basis of the Arthus phenomenon is not new.[3] Kern and Stewart,[4] from clinical experience, have expressed the opinion that there is an allergic relationship in peptic ulcer. There is abundant experimental background for these opinions.[5] This theory was put into practice, and a series of thirty-three cases of peptic ulcer treated by allergic management alone, with no medication, was reported in November 1934.[5] These patients were put on three meals a day, only those foods being limited to which they had been proved to be sensitive by skin testing and by food diaries. As a person usually becomes sensitive to foods eaten regularly in the past, it frequently happens that the foods restricted are those most commonly used in the conventional ulcer diet. In spite of this unorthodox treatment, the results obtained over a period of forty months were most encouraging. Since that time and since the advent of the leukopenic index, another series of six additional cases has been studied. These cases were all examined roentgenologically as well as by the other customary laboratory procedures. They are all cases of definite peptic ulcer, confirmed by x-ray studies, by a continuation of symptoms after repeated trials of orthodox medical management, and in one instance by the recurrence of symptoms after surgical intervention. No particular attention was paid to the presence or absence of an allergic history in the patient's past record, as there has been no attempt to select favorable cases. They happen to be the first cases presenting themselves for treatment after the leukopenic index was adopted as a means of study.

In the beginning of this experiment, it was the practice to perform skin tests by the intracutaneous method and to omit those foods from the diet which gave the most strongly positive reactions. As this work progressed, it seemed more advisable to test the foods most commonly used and to omit the ones that pro-

1. Vaughn, W. T.: Food Allergens: III. The Leukopenic Index, J. Allergy **5**: 601 (Sept.) 1934; Further Studies on the Leukopenic Index in Food Allergy, ibid. **6**: 78 (Nov.) 1934.

2. Rinkel, H. J.: The Leukopenic Index in Allergic Diseases, read at the thirteenth annual meeting of the Association for the Study of Allergy.

3. Gay, L. P.: Gastro-Intestinal Allergy: The Duodenal Ulcer Syndrome, South. M. J., to be published.

4. Kern, R. A., and Stewart, S. G.: Allergy in Duodenal Ulcer: Incidence and Significance of Good Hypersensitiveness as Observed in Thirty-Two Patients, J. Allergy **2**: 51 (Nov.) 1931.

5. Ivy, A. C., and Shapiro, P. F.: Studies on Gastric Ulcer, J. A. M. A. **85**: 1131 (Oct. 10) 1925. Shapiro, P. F., and Ivy, A. C.: Gastric Ulcer: Experimental Production of Gastric Ulcer by Local Anaphylaxis, Arch. Int. Med. **38**: 237 (Aug.) 1926.

duced a negative balance. A satisfactory diet can be worked out more quickly this way and this procedure avoids one possible error that may occur if a food that has not been in the diet for several months is tested. If a previously restricted food is tested without its having been eaten a few times in the week preceding the count, a curve denoting compatibility may be obtained. Later curves may show a definite depression of the leukocyte count. An immediate depression of the count by a previously restricted food indicates a very toxic allergen, and it is not unusual for such a food to produce symptoms during the test period. It frequently occurred that there was a marked discrepancy between the skin tests and the compatible foods as determined by the feeding tests, but this is to be expected as the etiologic diagnostic failure of the skin tests has been pointed out by numerous observers. Heretofore the only remaining proof has been reliance on a diary, but happily the leukopenic index has proved to be an aid of unexpected reliability and accuracy, not only in determining the allergic state but in determining the actual allergens at fault. Omission of foods producing a negative balance and the exclusive use of those producing a positive balance has resulted in cessation of symptoms and relief in every case so managed to date. Milk and wheat have been shown to be allergens in every instance and egg has been a compatible food in only three cases. As these foods are the ones most commonly used in ulcer diets and as they have been proved to be capable of reproducing symptoms on clinical trial after total omission, it is not surprising that one characteristic of peptic ulcer is the cyclic recurrence of symptoms for many years. Wheat, milk and egg, however, are not the only foods that are to be omitted, as each individual has different sensitizations to foods, and to get a good clinical result these particular sensitizations must be recognized and restricted.

As is shown in the tables, actual allergens depress the total leukocyte count very definitely. They are also able to keep the interval counts below the level of the fasting leukocyte count. At times there is also a curve which can be classified only as an indeterminate reaction. True classification of this type can be made by clinical trial or by the use of the questionable food as a gastric test meal and by observing the response of free hydrochloric acid to it. Because of the impression that the usual high acidity associated with peptic ulcer was probably caused by the use of incompatible foods, gastric analyses were done at the same time as the leukopenic studies, specimens of blood and stomach contents being taken every twenty minutes and the food studied being used as the gastric test meal. Contrary to expectations, foods depressing the leukocyte count were also capable of depressing the free hydrochloric acid values in a majority of instances. Though this finding is not constant, as is shown by the charts, it is striking enough to be more than a mere coincidence. Compatible foods, or those showing a digestive leukocytosis, were accompanied by a rise in the free hydrochloric acid curve. This again was not an absolute constant, but, as the additional information of the response of free hydrochloric acid was available, those which increased the free hydrochloric acid response were judged to be compatible foods and were replaced in the diet. Clinical trial has proved this assumption to be true, as each food that was indeterminate by the leukopenic index but was capable of increasing the free hydrochloric acid value has been asymptomatic in the diet. Foods that were used as a test meal and were accompanied by lowered hydrochloric acid values have induced recurrence of symptoms on each feeding experiment. This has been true of the indeterminate types as well as of those giving a clearly marked incompatible curve. In this connection, the leukopenic index indicates the degree of sensitivity, as a marked drop in the leukocyte count coincides with a complete absence or marked inhibition of free hydrochloric acid. Foods of this type have always been immediate pain producers by the feeding test. These antigens were characterized in another way; that is, the ingestion of these foods caused an immediate and definitely excessive secretion of mucus, which is analogous to an allergic reaction in any other mucous membrane. This may explain the lowered free hydrochloric acid value due to the buffer action of mucus. From repeated tests it is questionable whether actual protein is the buffer in this instance, since fruit and vegetable juices have been quite as effective in this regard as egg white, meat and fish. A delayed rise in the free hydrochloric acid value is common after the use of an antigenic food which has greatly lowered or inhibited the free hydrochloric acid response, and this observation may possibly account for the fasting hyperacidity usually associated with peptic ulcer.

REPORT OF CASES

The following case reports illustrate the use of, and the results obtained by, the leukopenic index in determining incompatible foods which, when eliminated, allow cessation of symptoms and which, when reintroduced into the diet, reproduce in detail the classic syndrome of peptic ulcer:

Case 1.—A. J., a man, aged 33, a machinist, complained of tearing pain in the epigastrium about two hours after meals, which was relieved by food, and an aching pain in the lower lumbar region of the back. The onset of the pain occurred about nine years previously when a stomach disorder of a similar nature was present for about one month. This pain had recurred each spring with gradually increasing severity and duration, but this year the pain had come on earlier and was much more severe. The present attack had been present for three months, had been getting worse steadily and was preventing sleep. There was slight relief from heavy magnesium oxide and there was relief from night pain with food. There had been no vomiting until the first day of consultation. There was no blood in the vomitus and there had been no tarry stools. There was usually no nausea, but gas and bloating were frequent. Belching was frequent and was accompanied by slight relief. The pain was in the epigastrium; it was not referred and it began two hours after meals. The pain was relieved by food and was partially relieved by alkali and by manual pressure over the epigastrium. The character of the pain was described as being tearing and burning. There had been a good appetite, but the diet had been limited by various physicians previously consulted. There had been a tendency to rather marked constipation, and liquid petrolatum had been taken each day. There had been a slight loss of weight during the past few months, which the patient attributed to loss of sleep because of pain.

The past history was unimportant and there had been no manifestations of allergy. The patient's father died of heart disease; his mother was living and well, and he had two brothers living, both of whom had symptoms of peptic ulcer. One of the brothers had had a gastro-enterostomy performed, with a recurrence of symptoms. The patient was married. His wife and his two children were well. His wife had never had any miscarriages. He did hard work from 8 a. m. to 5 p. m. The habits of life were regular; he did not drink and he rarely smoked. He maintained his own home and had breakfast and dinner at home.

The patient was of sthenic habitus. The blood pressure was 95 systolic, 60 diastolic. The weight was 59.5 Kg. The musculature was good but the nutrition was rather scanty. There

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was a moderate erythematous spread when the skin was stroked. The pupils reacted to light and on accommodation. The nostrils were clear, the teeth were well kept and in good repair and the throat was slightly reddened. The thyroid was not palpable. The lungs were clear and there were no râles. The heart was regular and clear and there were no murmurs. On examination of the abdomen there was a point of tenderness in the epigastrium of about 2 degrees severity. All reflexes were normal.

Roentgenologic examination of the gastro-intestinal tract revealed a deformed and tender duodenal cap, making the diagnosis of duodenal ulcer highly suggestive. Other routine laboratory examinations were not significant. The results of the skin tests and leukopenic index studies are indicated in table 1, and the results of the gastric analyses are expressed in chart 1.

The actual diet from the combined gastric analysis and leukopenic index studies consisted of rice, apples, cauliflower, asparagus, chicken, oatmeal, beets, cabbage, sweet potatoes, coffee, pork and fish. It so happened that wheat, milk and eggs were the first foods tested and, as they were incompatible, they were taken out of the diet immediately. This initial omission was of distinct benefit, so no further restrictions were advised until the entire study was completed. Since the restriction of incompatible foods there has been absolute comfort and there has been no more trouble with constipation except after an occasional deviation from the diet. During this entire period the patient continued at his work and, of late, has been working overtime at night. One evening at a party, a well meaning hostess insisted that the patient eat some fresh angel food cake. There was acute pain in one hour which lasted most of the night and which was not relieved by food in the revised diet. Eight months later the patient added milk and potatoes to his diet of his own accord and experienced a prompt return of all symptoms. Pain disappeared in two days after milk and potatoes were again omitted, but constipation continued for ten days. The man is now perfectly comfortable; he eats three meals a day, works every day and takes no medication.

CASE 2.—T. M., a man, aged 32, a liquor dealer, complained of early morning pain which would awaken him and which was relieved by food. It had been assumed that the pain was due to gas, because belching had always given partial relief. This pain had been present for about a year, but the patient had ignored it until two months before the present consultation, when he fainted while at work. On regaining consciousness he vomited a large amount of blood, fainted again, and was then taken to a hospital. On admission to the hospital all foods and fluids were restricted by mouth, a nasal tube was passed and the stomach was washed free of clots with physiologic solution of sodium chloride. An ice cap was placed on the epigastrium, 10 per cent dextrose solution was given intravenously, morphine was administered and 1 cc. of parathyroid extract was given intramuscularly twice daily for two days to decrease the bleeding time. As there was no tendency to further hemorrhage, food was given gradually and in ten days the patient was allowed to return to his home. After an interval of three weeks a roentgenologic examination of the gastro-intestinal tract was made and a diagnosis of duodenal ulcer was returned. During this period there had been rather more pain than usual and he had been eating soups, custards, raw and coddled eggs, bread and milk, and he had been drinking a large quantity of milk.

The past history was not important except that there had always been a good deal of sneezing. There was no other history suggestive of allergy. He had been in the habit of drinking beer every day. His father died of pneumonia, his mother was living and well. The patient was married. His wife was well; she had never been pregnant.

The patient was of sthenic habitus and pale. The blood pressure was 110 systolic, 70 diastolic. He weighed 51 Kg. There was no reaction when the skin was stroked. The pupils reacted to light and on accommodation. There was a slight excess of mucoid nasal discharge. The teeth were in good repair, and the throat was slightly reddened. The thyroid gland was not palpable. The lungs and heart were normal. There was a point of tenderness of about 1 degree in severity in the epigastrium. All reflexes were normal.

A comparison of the skin tests and the compatible foods by the leukopenic index and by gastric analysis is noted in table 2 and chart 2. In this case, as in case 1, wheat, milk and eggs were eliminated first, and there was an immediate and complete cessation of symptoms. It will be noted that these foods were the ones used after his hemorrhage, and it was during this period that he experienced an unusual amount of pain. No other restrictions were imposed until the study was completed. The final diet consisted of cauliflower, apples, coffee, beets, string beans, cabbage, carrots, tomatoes and oatmeal. This was not a very interesting diet but it was felt that all foods giving an incompatible reaction should be restricted in order to avoid a quick sensitization to allergens that at the present time were subclinical in type. It has been observed that the regular use of these foods soon results in clinical manifestations of peptic ulcer even though the major allergens are out of the diet. The occasional use of indeterminate foods and those which do not reproduce pain except by cumulative action does not seem to be harmful.

TABLE 1.—*Results of Skin Tests and Leukopenic Index Studies in Case 1*

Incompatible	Leukopenia	Skin
Potato	1,400	+++
Orange	1,200	Neg.
Beef	2,000	Neg.
String bean	400	+++
Corn	2,200	+++
Spinach	2,200	Neg.
Carrot	2,200	++
Pea	800	Neg.
Turnip	1,800	Neg.
Tomato	2,000	Neg.
Prune	600	Neg.
Navy bean	800	Neg.
Wheat	1,800	++++
Milk	2,200	++
Egg	2,000	Neg.
Compatible	**Leukocytosis**	**Skin**
Lamb	1,200	Neg.
Rice	600	+ -
Apple	1,400	Neg.
Cauliflower	600	Neg.
Asparagus	600	+++
Chicken	1,800	+++
Oatmeal	2,400	+++
Beets	1,200	++
Cabbage	800	++++
Foods Indeterminate by Leukopenic Index but Compatible by Gastric Analysis		
Sweet potato		Neg.
Coffee		+++
Pork		Neg.
Fish		Neg.

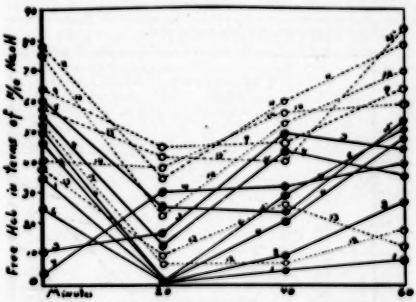


Chart 1.—Fractional gastric analyses in case 1. The four charts show the response of free hydrochloric acid to foods used as test meals, with coincidental leukopenic index study. Numbers refer to foods listed below the charts. The degree of leukopenia is listed opposite the incompatible food. Solid lines indicate incompatible foods, broken lines compatible foods.

The patient was free from pain and discomfort from Dec. 17, 1934, to June 9, 1935, when he ate a sandwich while on a picnic. He had pain in about one hour which lasted for about six hours. From the time the diet was instituted until the short recurrence of pain there had been a gain in weight of 19 pounds (8.6 Kg.). Two months later he again broke his diet, this time eating wheat, beef and a creamed soup for lunch and

TABLE 2.—*Results of Skin Tests and Leukopenic Index Studies in Case 2*

Incompatible	Leukopenia	Skin
Egg	1,800	Neg.
Milk	1,600	++
Wheat	1,200	++++
Pea	1,600	Neg.
Potato	1,800	++++
Beef	3,400	+++
Lamb	2,200	++++
Corn	4,000	+++
Spinach	1,600	Neg.
Asparagus	4,200	Neg.
Orange	3,000	Neg.
Pork	2,200	+++
Prune	3,400	Neg.
Sweet potato	3,400	++++
Fish	3,600	Neg.
Rice	3,800	++++

Compatible	Leukocytosis	Skin
Cauliflower	400	Neg.
Apple	1,200	Neg.
Coffee	200	+++
String bean	400	++++
Beets	600	+++
Cabbage	1,000	++

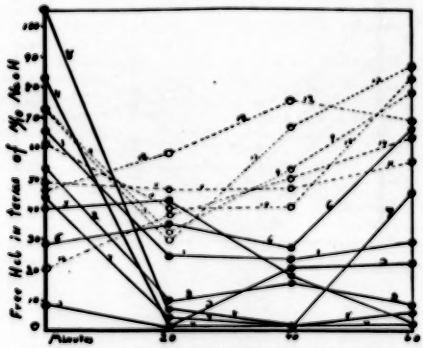
Foods Indeterminate by Leukopenic Index but Compatible by Gastric Analysis

Carrot	Neg.
Tomato	+++
Oatmeal	+++

Food Indeterminate by Leukopenic Index and Incompatible by Gastric Analysis *

Chicken

* This food produces pain on clinical trial.



Incompatible	Leukopenia	Compatible	Indeterminate
1. Corn	4,000	9. Cauliflower	15. Carrot
2. Spinach	1,600	10 Apple	16. Tomato
3. Asparagus	4,200	11. Coffee	17. Oatmeal
4. Orange	3,000	12. Beets	18. Chicken
5. Pork	2,200	13. String bean	
6. Prune	3,400	14. Cabbage	
7. Sweet potato	3,400		
8. Fish	3,600		

Chart 2.—Fractional gastric analyses in case 2.

repeating the same foods at his evening meal to determine whether he had acquired a tolerance for them. Two hours later he felt dizzy and experienced a severe substernal pain. The next day he passed tarry stools and the dizziness continued. He did nothing about his condition except to be more careful about his diet, and a few days later he felt perfectly well again. One week later he came for his customary check up. The hemoglobin was 82 per cent, the blood pressure was 115 systolic, 70 diastolic, and the weight was 68.5 Kg., making a total gain of 17.5 Kg. in nine months. He is comfortable again and intends to avoid the major allergens in the future.

CASE 3.—Mrs. J. V., aged 44, in August 1928 complained of pain in the right upper quadrant of the abdomen, which was referred to the back and which had been present for one year. The onset had been gradual, with sensations described as indigestion occurring at irregular intervals, depending on the type of foods eaten. She usually felt well in the mornings or while at rest, as effort seemed to increase her discomfort. Since the patient felt better on a light diet, her food intake had been limited accordingly. Three weeks prior to examination there had been an attack of indigestion followed by pain in the right upper quadrant of the abdomen and by pain referred to the right side of the back. Since that time the pain had been rather constant but there were occasional periods of relief during the day. During this period there had been frequent vomiting of recently eaten foods and there had been much gas and bloating. The distention was in the lower part of the abdomen and was noticed particularly after the heavier foods. The bowels moved normally. The patient was nervous, slept poorly and had lost 10 pounds (4.5 Kg.). Ten years previously the appendix and a fibroid tumor of the uterus had been removed. Her mother had suffered from gallstones and had died following cholecystectomy. Her father died of senility. The patient had been married for fifteen years and her husband, a farmer, was living and well and two sons were living and well. There had been no miscarriages.

The patient was of hypersthenic habitus, and weighed 83.7 Kg. The blood pressure was 125 systolic, 70 diastolic. Nutrition was overgood and the complexion was florid. The pupils reacted to light and on accommodation. The teeth were well kept, the throat was reddened and the tonsils were enlarged. The nasal mucosa was excessively moist and grayish. The thyroid was enlarged and soft. The lungs were normal and the heart sounds were regular and clear. There was a postoperative scar in the lower midline of the abdomen and there was tenderness of 1 degree in the right upper quadrant. As a chronic cholecystitis was suspected from the history, a cholecystogram was done and the gallbladder was visualized perfectly in all films. A barium sulfate meal was then given and a grossly deformed and tender duodenal cap was demonstrated. The Sippy routine of ulcer treatment was instituted and the patient made reasonably satisfactory progress until January 1931, when signs of subclinical obstruction developed. As the patient had grown careless with her diet she was again put on liquids, with alkali and atropine, and gradually improved. After this experience the diet was observed more carefully and, though there were exacerbations of pain from time to time there was no more serious trouble until January 1935, when the same type of pain returned, but much more severely. This pain had been coming on gradually and the patient had been vomiting at night for several months. The vomitus at times contained blood. The severe pain, which had been present for about one month prior to reexamination, occurred two hours after meals and at night and was relieved by vomiting. There had been no tarry stools and the bowels had moved normally except for attacks of diarrhea after the recent attacks of vomiting. There had been much gas and distention of the lower part of the abdomen. On requestioning, the patient remembered that her father was subject to asthma and that she herself had had attacks of asthma while a child in Switzerland. She also recalled that peaches, spinach and pastries had always caused abdominal pain and that milk, butter and lard had always caused gas. The roentgenologic examination was repeated and revealed a definite pyloric obstruction that increased the emptying time of the stomach for considerably more than six hours. As a consequence, the patient was given ten injections of histidine, with excellent results, as the emptying time of the stomach decreased markedly. The duodenal cap could then be visualized and it exhibited the gross deformity characteristic of duodenal ulcer. Skin tests were done and the patient was asked to keep a food diary. A few foods were excluded by the diary alone, while wheat, milk and potatoes were excluded by the leukopenic index. Egg proved to be a compatible food. Pain had continued after histidine, but histidine had apparently relieved the accompanying ulcer edema to such an extent that

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there was no longer an obstruction. The elimination of wheat, milk, potatoes and pork from the diet has made the patient perfectly comfortable. She is now eating three meals a day, takes no medication and works every day. She can eat any of the compatible foods listed in table 3 with impunity, but any of the incompatible foods cause an immediate return of pain. These foods may be her only allergens but it was thought advisable to continue the leukopenic studies even on the list compatible

TABLE 3.—*Results of Skin Tests and Leukopenic Index Studies in Case 3*

Incompatible	Leukopenia	Skin
Wheat	1,600	+++
Milk	400	+++
Potato	800	++++
Compatible	**Leukocytosis**	**Skin**
Egg	2,600	+++
Pea	2,800	++
Compatible Foods By Diary Alone		
Asparagus		Neg.
Beet		++++
Beef		Neg.
Cabbage		++++
Cauliflower		Neg.
Chicken		++
Coffee		Neg.
Corn		Neg.
Lamb		+++
Lettuce		Neg.
Fish		Neg.
Orange		Neg.
Tomato		++++
Rice		+++
String bean		Neg.
Sweet potato		++

by diary. The patient, however, did not think so and when asked to come in for more food studies replied "What is ze use whan all day long I seeng like ze bird."

CASE 4.—H. C. C., a man, aged 43, complained of gas and bloating after certain foods which were followed by a sensation of severe pressure and severe pain. The onset had been twenty years before with pain after meals and night pain. He was told at the time that he had a duodenal ulcer. The symptoms persisted for several years until an attack of typhoid. After his recovery from typhoid it was noticed that the pain had disappeared but that severe indigestion continued. There was a severe hemorrhage from the stomach about one year after the attack of typhoid. After this experience he was treated by diet and medication with little benefit, until a gastro-enterostomy was performed at one of the large clinics. After the operation there was a moderate degree of clinical improvement, but there has always been digestive discomfort of varying degrees of severity. Three years before examination another severe hemorrhage had occurred. After rest in bed and a liquid diet there was again improvement for a few months, and then another hemorrhage. As the patient was on a careful diet he merely stayed in bed until there was no more bleeding and then went on his way as usual. There had been no other illnesses or operations in the past history. There was never any fever, but he had always caught cold rather easily. There was no chronic cough. Frontal headache had been frequent and troublesome. There was no personal history of allergy, but the patient's daughter had urticaria. There were some known foods that caused immediate discomfort and others that were suspected. The gastric symptoms consisted of gas and bloating for three or four hours after meals and a pressure sensation which at times became a severe pain. The greatest ease and comfort was enjoyed when there was no food in the stomach. There was rarely any nausea or vomiting. The appetite was good and the diet consisted of eggs, orange juice, coffee, milk and malted milk, soups, custards, cold meats and either baked or mashed potatoes. The bowels had always been normal. There was no weight loss and there was but little difficulty in sleeping. The father and mother both died following cerebral hemorrhages. There were two brothers living but one of them had been ill with multiple lung abscesses and was still in a serious condition. The patient's wife was in good health and his one daughter was in good health. The habits of life were regular. The patient's occupation was that of first assistant to the overworked and harassed head of a large corporation, and, though his hours were supposed to be from 8 a. m. to 5 p. m., there was considerable night work to be done and work was always done under pressure. To add to the man's physical ailments, he had the responsibility of his brother's illness and the usual family responsibilities that are shifted to efficient men.

The patient was of hyposthenic habitus. The blood pressure was 110 systolic, 80 diastolic. He weighed 55.5 Kg. The nutrition was moderately good but the nail beds and mucous membranes were rather pale. There was a moderate erythematous response on stroking the skin. There was a marked arcus senilis, but the pupils reacted to light and on accommodation very promptly. The nostrils were clear. The teeth were well kept and in good repair. The throat was reddened. The thyroid was palpable but soft, and there was no increased vascularity. The heart and lungs were normal. There was a postoperative scar in the upper part of the abdomen. There was tenderness of 1 degree in the epigastrium, and there was rather marked distention of the lower part of the abdomen with gas. All reflexes were physiologic.

On roentgenologic examination of the gastro-intestinal tract there was partial functioning of the gastro-enterostomy stoma and deformity of the duodenal cap. Very marked reactions were obtained by skin test with asparagus, beet, cabbage, chicken, coffee, milk, oat, onion, pepper, potato, rice, sweet potato and wheat. These foods were eliminated and testing by a trial diet and by a food diary was undertaken. By diary and by clinical test it was found that all cereals, with the exception of rice, were distinctly and violently antigenic. It was also proved that the repeated use of chocolate, string beans and potatoes, by cumulative action, caused discomfort in a less degree. Milk was suspected, but milk as an antigen could not be proved by diary, as its action was later proved to be a slowly accumulative one. The patient cooperated in an admirable and extraordinarily intelligent way with but one deviation from his instructions. This instance occurred while out of town on a business trip and consisted of the self administration of a cathartic containing phenolphthalein. This drug brought on a violent attack of urticaria, and during this attack, whether it was a coincidence or whether there was a similar reaction in the stomach, another hemorrhage of slight degree, but accompanied by tarry stools, occurred. From that time to the present, progress has been very satisfactory, but it has been very difficult to increase the diet. Milk, though not proved by diary, was demonstrated as an allergen by the leukopenic index, and there

TABLE 4.—*Results of Skin Tests and Leukopenic Index Studies in Case 4*

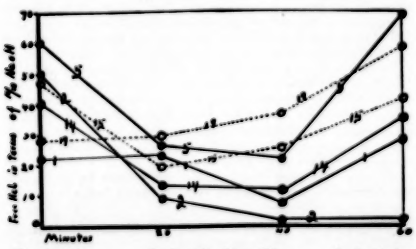
Incompatible	Leukopenia	Skin
Milk	1,200	Neg.
Pork	800	+++
Orange	2,800	Neg.
Compatible	**Leukocytosis**	**Skin**
Beef	1,800	Neg.
Egg	1,200	Neg.
Apricot	1,800	Neg.
Strawberries	600	+++
Compatible Foods By Diary Alone		
Corn		+++
Prunes		Neg.
Tea		Neg.
Rice		++++
Pea		+++
Beans		Neg.
Potato		++++
Lettuce		Neg.

has been distinct relief since its omission. As will be observed in table 4, there was a wide variation between the skin tests and the actual allergens as determined by diary and by the leukopenic index. Furthermore, the patient's personal observations have been most interesting as he is able, from his diary record, to predict the outcome of his leukopenic index studies in most instances. His compatible list consists of beef, jello, eggs, corn, plums, prunes, butter and tea, but he is able to eat rice, peas, beans, potatoes and lettuce if he does not eat any of these foods too often. That is, rice, peas, beans, potatoes and lettuce produce pain by cumulative action if they are repeated in the diet any oftener than every third day.

Case 5.—J. T. A., aged 45, a high school principal, complained of a sensation of emptiness of the stomach and a sensation of fulness and dyspnea after meals. The trouble began with a desire to yawn, which persisted, but yawning did not relieve whatever caused the urge to yawn. About four years before there developed a sensation of gnawing emptiness of the stomach when the stomach was empty, which was only partially relieved by food. After meals there was a sensation of dyspnea, which at times was severe, and as a result exercise had been limited. Occasionally this dyspnea occurred a few hours after meals and then it was relieved by food. There was an attack of influenza shortly after the onset of the gastric symptoms and the symptoms had been worse since that time. The patient had been told that he had a duodenal ulcer and he received some benefit from conventional ulcer treatment. There had been no fever and no symptoms suggestive of allergy. The gastric symptoms were confined to a sensation of fulness and a moderate amount of belching. The pain was in the epigastrium and, though constant, there was a moderate degree of food relief and some relief from lying down. The pain was described as an empty gnawing sensation. The diet had been composed mainly of cereals, milk and eggs as advised by his local physician. Constipation had been marked and magnesia magma has been used as a laxative. Sleeping had been difficult and there had been a slight loss of weight attributed to broken rest. The past history consisted of a very mild attack of joint pains, which was not disabling, and a tonsillectomy complicated by an abscessed throat. The patient's father died of kidney disease and his mother died of pneumonia. There was one brother and one sister, both of whom were well. The habits of life had always been regular but the patient had been getting much less exercise during the past few years than he was accustomed to having. Following an active athletic college life, the coaching of football and track had been a part of his teaching duties.

Table 5.—*Results of Skin Tests and Leukopenic Index Studies in Case 5*

Incompatible	Leukopenia	Skin Tests
1. Wheat	1,600	+++
2. Milk	2,600	Neg.
3. String bean	1,800	Neg.
4. Potato	3,200	++++
5. Orange	1,200	Neg.
6. Peach	1,800	Neg.
7. Pork	1,000	++++
8. Apple	600	Neg.
9. Rice	1,000	+++
10. Chicken	800	++++
11. Asparagus	1,400	+++
12. Beet	800	+++
13. Corn	1,000	Neg.
14. Beef	200	++++
Compatible	**Leukocytosis**	**Skin Tests**
15. Egg	1,800	Neg.
16. Pea	1,200	Neg.
17. Lamb	1,400	Neg.
18. Spinach	2,800	Neg.
19. Tomato	1,400	Neg.
20. Prune	2,200	Neg.
21. Rye	400	Neg.



Incompatible	Leukopenia	Compatible	Leukocytosis
1. Wheat	1,600	15. Egg	1,800
2. Milk	2,600	16. Pea	1,200
3. String beans	1,800	17. Lamb	1,400
4. Potato	3,200	18. Spinach	2,800
5. Orange	1,200	19. Tomato	1,400
6. Peach	1,800	20. Prune	2,200
7. Pork	1,000	21. Rye	400
8. Apple	600		
9. Rice	1,000		
10. Chicken	800		
11. Asparagus	1,400		
12. Beet	800		
13. Corn	1,000		
14. Beef	200		

Chart 3.—Fractional gastric analyses in case 5.

The patient was of sthenic habitus. The blood pressure was 110 systolic, 70 diastolic. He weighed 66.0 Kg. The color and nutrition were good. There was a moderate reaction when the skin was scratched. The pupils reacted to light and on accommodation. The nostrils were clear. The teeth were in good functional repair. The throat was reddened and the tonsils were absent. The thyroid was not palpable. The lungs and heart were normal. There was tenderness of 1 degree in the epigastrium. All reflexes were physiologic. The clinical impression of duodenal ulcer was confirmed by roentgen examination. Skin tests were done and beef, chicken, coffee, pork, potato, fish, condiments and corn, which reacted strongly, were eliminated from the diet. The patient was then put on a food diary in order to prove or disprove these foods as allergens. As there was but little change after an adequate test period, tests by the leukopenic index were done, with the results listed in table 5. In this study two errors were made: Corn was tested after a prolonged abstinence and a curve denoting compatibility, with a leukocytosis of 1,600, was obtained. Corn was then replaced in the diet but produced pain consistently. The test on corn was then repeated and there was a loss of 1,000 cells in twenty minutes. Corn as a food was then discontinued. Beef caused a loss of 200 only in twenty minutes, followed by hyperleukocytosis at forty, sixty and ninety minutes. The initial insignificant loss was disregarded because of the indeterminate result of the gastric analysis, and beef was allowed as a food. It proved to be a symptom producer on trial and was discarded. The present diet consists of eggs, peas, lamb, spinach, tomato, prune and rye. The patient is perfectly comfortable on this diet and is eating but three times a day. The only medication is liquid petrolatum.

Case 6.—B. C. G., a man, aged 55, complained of nausea, pain and pressure in the epigastrium, which was constant but which was partly relieved by food. The onset of the illness had occurred about fifteen years before. He had been a heavy whisky drinker but finally had to stop drinking because of nausea. This nausea was thought to be due to biliousness, and he began taking mild mercurous chloride and laxatives of his own accord. Shortly after this episode he began to be conscious of hunger pain and a pain that was referred to his back. As the patient had a yellowish color, his physician apparently thought he was suffering from cirrhosis of the liver and from gallbladder disease, and an operation was advised. The patient was told that at operation the liver and gallbladder appeared to be normal but that the appendix was diseased and that it had been removed. No comment was made to the patient about the duodenum, but a diet was advised, and, since he was more comfortable on this routine than on other foods, he had adhered to this original menu, which was essentially a modified Sippy diet. Since the operation the patient has been roentgenographed numerous times in various cities and had had a diagnosis of duodenal ulcer made five times by different radiologists. There had been ulcer symptoms fairly constantly for fifteen years but there had also been periods of comparative comfort. Soda crackers had been kept within easy reach at night at all times, as a few crackers usually relieved night pain and permitted sleep. Unwise eating or the smallest drink of liquor brought on an attack of pain that persisted for three or four weeks. Washing the stomach gave relief and gastric lavage had been practiced from one to three times a day for many years. He caught cold easily and colds hung on. Headaches were rare but there was a general aching over the body and a feeling of toxemia. There was no evidence of allergy in the past personal history or in the history of the family. Constipation had been troublesome and there had never been an evacuation without the use of magnesia magma. There had never been any blood or mucus in the stools. The weight was 20 pounds (9 Kg.) under the usual normal. The health, other than the present condition, had always been good. The patient's mother had an ulcer of

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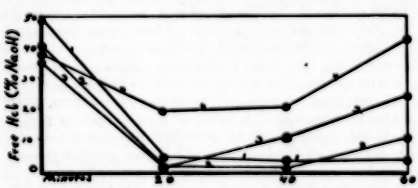
the stomach but died following a broken hip at the age of 82. His father died in a like manner at the age of 75. There was one sister; she had a goiter, which was probably colloid in type. The patient's wife was living and well and there were four daughters, living and well. The habits of life had been quite regular for the past fifteen years.

The patient was of sthenic habitus. The temperature was 98 F. and the blood pressure 90 systolic, 55 diastolic. The nutrition was rather scanty. The skin had a yellowish tinge and there was a moderate scratch reaction. The pupils reacted rather sluggishly to light and on accommodation. The nostrils were clear, the teeth were in good repair and the throat appeared to be normal. The thyroid gland was not palpable. The heart and lungs were normal. The abdomen was distended with gas and there was a small localized area of muscle spasm in the right epigastrium. The liver edge was not palpable and there was no liver tenderness. There was a postoperative scar in the right rectus region and there was an inguinal hernia on the right side supported by a truss.

Wheat, milk, egg and potato were tested in the order named, and each food caused a marked loss of cells. These foods and all cereals were restricted immediately and these restrictions have been all that has been necessary up to the present. No further tests have been done. The patient still experiences a moderate amount of discomfort at times but he is greatly improved and he is no longer forced to lavage his stomach to keep comfortable.

TABLE 6.—*Results of Skin Tests and Leukopenic Index Studies in Case 6*

Incompatible	Leukopenia	Tests
1. Wheat	1,200	None
2. Milk	800	None
3. Egg	2,400	None
4. Potato	2,000	None



Incompatible	Leukopenia
1. Wheat	1,400
2. Milk	800
3. Egg	2,400
4. Potato	2,000

Chart 4.—Fractional gastric analyses in case 6.

COMMENT

In the foregoing presentation, six unselected cases of peptic ulcer have been treated on the premise that peptic ulcer is an allergic manifestation.[3] Patient 3 had a definite personal and family history of allergy; patient 2 had only the history of sneezing as a possibility of hypersensitive rhinitis, and patient 4 had a daughter with urticaria. There was no allergic history in the other three cases. Several points of interest have developed during the course of this study, one of them being that wheat and milk, which form the basis of usual ulcer diets, were definite allergens in every patient. Egg was an allergen in three, or 50 per cent, of the cases. It was also observed that skin tests are of little or no value in gastro-intestinal allergy, mainly because the clinical reactions of some of the major allergens and many of the minor ones are of the cumulative type. This finding limits the reliability of the skin test practically to inhalant allergy. It follows, then, that food diaries can be definitely misleading. It is at times necessary for a food to be in a diet for a week or ten days before symptoms are produced and several days of abstinence are necessary before its influence disappears.

This confusion can be overcome by the use of single food testing and the leukopenic index. A definite and sustained leukocytosis after food ingestion indicates a food which is entirely compatible and is symptom free alone or in a mixed diet. A loss of leukocytes after a single food intake indicates the reverse reaction; that the food in question is an actual allergen and that it is able to reproduce symptoms. This has been demonstrated repeatedly, by accident and by purposeful feeding. It is important that a food to be tested should be included in the diet a few times during the week preceding the test. Apparently the leukocyte response becomes refractory to an occasional previously restricted food until it has been in the diet for a time. Repeated tests on a food of this type produce curves going from a sustained leukocytosis to a leukopenia that decreases with each succeeding test.

An immediate leukopenia is significant of an allergen, and leukopenia of slight degree followed by hyperleukocytosis has the same significance. The majority of major allergens used as a gastric test meal have the ability to depress, or to inhibit totally, the free hydrochloric acid secretion, while compatible foods are followed by a normal response. Foods that are indeterminate by the leukopenic index may at times be properly classified by the response of free hydrochloric acid to them. The variation in acid values may be due entirely to the presence or absence of the buffer action of mucus, and the secretion of a marked excess of mucus in the presence of a known and proved allergen is probably a protective mechanism similar to the allergic reactions of any other mucous surface.

It appears, then, that the pain of peptic ulcer occurs in the presence of antigenic foods and in the presence of an achylia or an acidity which is much lower than the usual normal for that individual. It also appears that a normal response of an increased secretion of hydrochloric acid indicates a compatible food and that a lowered acidity value indicates an incompatible food. It also appears that the usual method of employing test meals is at fault in that the results obtained are dependent on that individual's reaction or sensitization to that particular food, because gastro-intestinal allergy is much more frequent than is appreciated.

It should be pointed out that there is frequently a relationship between the degree of depression of leukocytes and the antigenic power of the food in question. In general, however, the more marked the leukopenia the more antigenic the food, and also the more marked the leukopenia the more the lowering of the hydrochloric acid value.

Though complete relief of peptic ulcer symptoms can be given a patient by feeding foods that are compatible by the leukopenic index, the objection may well be raised that conventional methods of treatment also give relief. The answer to that objection is that they do, but by a method of feeding repeated doses of the chief offending foods. By the regimen of rest, doses of antigen at frequent intervals and the added protection of belladonna, a state of antianaphylaxis is built up that does indeed promote a cessation of symptoms. This state of antianaphylaxis persists until its balance is disturbed by a gradually increasing diet and then symptoms are likely to recur. Not only is relief of symptoms by antianaphylaxis possible in any other type of allergy

but an appreciation and understanding of this phenomenon is most important in properly interpreting a food diary. The important point is that a food producing a symptom is also capable of partially relieving that symptom when taken later. In other words, the pain of peptic ulcer may be due to a localized anaphylactic spasm which is relieved by antianaphylaxis or actually by the interval feeding of an antigenic substance which originally caused the spasm. This was strikingly demonstrated by case 1, in which pain developed from a food composed of wheat and egg white but relief was not possible from eating foods known to be compatible. Before the institution of a correct diet, food had always given the patient relief from ulcer pain. Expressed differently, antigenic foods relieve pain and simultaneously reduce the normal optimal gastric acidity, which is a condition approximated by the use of alkali and belladonna. A diet composed of compatible foods exclusively is capable of giving complete relief from ulcer symptoms and is capable of freeing the patient from medication, from interval feedings and from the necessity of hospitalization.

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HISTORY TAKING IN ALLERGIC DISEASES

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The successful treatment of hay fever, asthma and eczema, like the successful treatment of other diseases, depends on a complete understanding of the patient and his particular problem. In the allergic diseases this is especially true because, as Pirquet [1] has described, the symptoms depend on the peculiar capacity of the individual to react toward certain foreign substances. Not only must the physician understand the physiologic changes in the body of his patient, but particularly in the cases of hay fever, asthma, eczema and the other manifestations of allergy he must understand the patient's environment, his contacts with the various foreign substances that it may contain, and his reaction to these contacts. Recent clinical experience has led to the use of certain "tricks" in history taking in allergic diseases which are of such practical importance that their recognition constitutes a virtual advance in diagnosis and treatment.

First of all, the physician must know whether or not the symptoms of which his patient complains are probably of allergic origin. Elsewhere I [2] have laid stress on the five criteria of allergy—those symptoms and signs which are characteristic of each manifestation of clinical allergy and which, when found, are helpful to the diagnosis. These criteria are: 1. A characteristic symptom dependent on a characteristic local pathologic condition. 2. The presence of some other allergic symptom in addition to the first. 3. A positive family history of allergy. 4. Positive skin tests. 5. A blood eosinophilia. Obviously, the physician cannot give proper treatment until he can determine that his patient has hay fever and not sinusitis, or that he has asthma which depends on allergy and not on heart disease or tuberculosis, or perhaps is merely a wheezy bronchitis. Eczema is easily confused with various fungous infections of the skin, urticaria with scabies, migraine with many varieties of headache, and so on. Differential diagnosis is always important, and the diagnosis, which the patient himself often assumes, must not be taken for granted. It is not my purpose in this paper to discuss the details of differential diagnosis but it is necessary to point out that they exist and may be easily overlooked.

Furthermore, any of the allergic diseases may coexist with and be complicated by some other disease. Even if the patient does have asthma, for example, it is still necessary to make sure that he does not also have organic disease of the heart or lung or even a tracheal obstruction of which his so-called asthma is merely the presenting symptom.

Meantime, the allergic diseases are common (textbooks say that from 1 to 4 per cent of the population is afflicted) but "cures" are not so common. "Cures" of the allergic symptoms (though not of the underlying allergy) result whenever the particular substance or substances can be found and eliminated—the family cat, the feather pillow or the floss mattress, for example, or whenever the patient moves away from it or them. This happens more often in the textbooks than in actual practice. The physician must realize that the dramatic relief of symptoms frequently described as the result of a happy finding in the typical "textbook" cases occurs in only a small proportion of the whole number of patients. These cases are almost in a class by themselves. Always, however, there is hope that the next case will belong to this typical group and that the cause of trouble will be as easy to find here as in the other "textbook" cases. Furthermore, there is always hope—and justifiable hope—that the typical "textbook" group will be extended by new knowledge into many directions to embrace an ever greater proportion of allergic patients.

Since the fundamental nature of allergy, of the capacity to develop sensitiveness and then to react to the specific substance, is still unknown, present interest, at least from the practical point of view, concerns the exciting cause of the symptoms.

Diagnosis of the exciting cause of asthma, sometimes referred to as the "trigger" mechanism, rests on three factors, which in the order of their importance are the history, the physical examination and the skin tests. At first it was thought that the skin tests were infallible; that when a patient showed a positive reaction to some substance, that substance was of great clinical importance, and that when the patient did not react the corresponding substance was of no importance. This simple point of view cannot now be maintained, because it is recognized that the skin tests are fallible in two directions. First, positive skin tests can occur with no clinical symptoms to go with them. The point is easy to prove because the discrepancy can be found in many patients. A good example is the patient who has hay fever which does not begin until August; he has no trouble in June, and yet his skin tests to the grass pollens are quite as large as his skin test to ragweed. Obviously, the positive grass tests have no clinical significance. This particular discrepancy between tests and symptoms is a common one. Positive skin tests to animal danders, to wheat and to other allergens, with no evidence of clinical sensitiveness to go with them, are also common. The skin tests are fallible in the opposite direction also. Clinical sensitiveness can occur even though the skin tests are entirely negative and by

1. Pirquet, Clemens: Allergie, München. med. Wchnschr. 53: 1457, 1906.
2. Rackemann, F. M.: Clinical Allergy Particularly Asthma and Hay Fever, New York, Macmillan Company, 1931.

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every method. This discrepancy is not so easy to demonstrate. However, there are a few type cases that seem to prove the point. In one, for example, the asthma cleared entirely when the cat was sent away, but skin tests to cat hair remain negative. A more objective finding is that of Franklin Stevens,[3] who found that, if the specific substance was applied to the bronchial mucosa through the bronchoscope, asthma would result even when the same substance caused no reaction by skin test. If these two fallibilities are true, it is quite apparent that the skin tests lose much of their glamour. Results from skin tests must still, as always, be interpreted in terms of the history.

Physical examination is always important. Wheezing is asthma, but the type of asthma, the presence of secondary infections, the presence of focal infections and the presence of other lesions are all to be determined by physical examination, which must never be neglected or overlooked.

It is the history, however, which, from the practical point of view, becomes the chief diagnostic measure. The patient's age, his heredity, his previous medical experiences and his general makeup are all important. His mental capacity and reactions should be noted. Are his statements reliable? Does he probably exaggerate or, on the other hand, does he make light of symptoms which are severe and possibly serious? Are there emotional loads, financial difficulties, and the like, which in themselves could aggravate symptoms of any kind and origin, to make a bad matter worse, and thus confuse the primary cause of trouble?

The family history may be important because the tendency to hypersensitiveness—the "allergic state"—is often inherited. "Does any one in your family have hay fever or asthma or skin trouble (eczema) or perhaps migraine?" is a useful question. In 1916 Cooke and VanderVeer [4] studied two series of families and found that if one parent was allergic 60 per cent of the children showed some manifestation of allergy, whereas if both parents were allergic the figure was higher, at 67.5 per cent. According to the mendelian law, the figures should be 50 and 75 per cent. If the family history is positive, the fact is a little evidence that the patient's symptoms are of allergic origin.

The important part of the history concerns the environment and particularly the changes in environment, and whether or not these changes were accompanied by corresponding changes in symptoms. To understand the patient's occupation, past and present, its hazards, and particularly the dusts connected with it, may lead to the easy discovery of the cause of trouble. The residence is important. Farm houses have dusts from animals, hay, grain, fertilizers and insecticides which may be quite different from the dusts of the city. Inside the house, however, the problem becomes even more complex, as will be discussed presently.

But how can the doctor discover which of the many possible sources of trouble is the real one or ones? The "tricks" that were mentioned in the opening paragraph will help to answer this question. It is the changes in occupation, in residence, in furniture or in other factors, which must be studied carefully.

The first "trick" is to record dates. Hay fever comes and goes according to the dates on which certain pollens to which the patient is sensitive are in the air. Asthma that comes in short sharp attacks "twice a year" is better understood when the dates are included and one learns that these dates were October and March, "the open season for head colds." A school boy had attacks three times a year, "eleven months ago, seven months ago, and five months ago" a meaningless story until the dates were recorded and it was appreciated that December 21, March 28 and June 12 represented the beginnings of vacation and the change from boarding school to home (where there was a cat!). A woman had asthma "about five times last winter." The first impression was that these attacks came about a month apart, but questions about dates brought out the fact that the five attacks had followed one another in quick succession and that they all occurred in the month of December, at a time when she went on a long visit to her grandmother in New Jersey. Through the rest of the winter she was free. Some time ago a student, taking a routine history, described at great length an attack that occurred "seventeen months ago" and then another attack which occurred "five months ago." Whether he himself knew the dates is doubtful. At any rate the poor fellow had made an actual effort to exclude the fact that the difference between seventeen and five was twelve, that the two attacks were exactly a year apart, and that both of them had occurred in the month of September, which, of course, was quite enough in itself to suggest ragweed as a precipitating cause. Subsequently, this was proved to be the case—a diagnosis made on one crucial point—the dates in the history. "On and off" as a careless estimate of the number and frequency of attacks won't do. The lazy questioner will miss the point.

Dates by months are usually accurate, but the patient may know the exact day. "Seven years ago" becomes only "five years ago" when the date of the attack is correlated with the known date of a certain operation. "About six months ago" turns out to be not March but May, or at any rate at some time after the grass had begun to turn green. Actually it was only four months ago. As usual, the patient had exaggerated unconsciously. Dates are not hard to remember because they can usually be checked with other circumstances, birthdays, school graduation, the weather, snow on the ground, or leaves falling. Changes in residence, childbirths, operations and accidents provide further clues to exact dates.

An incidental point about dates refers to the study of old records. To read "fifteen months ago" on a history taken in February 1927 requires some mental arithmetic to find that the event took place in October 1925, and the process involves two possible errors: first, the original calculation of "fifteen months ago" and, second, the subsequent reduction backward to the date. In case, however, dates are used, one can read that "the patient was well until October 1925 (with his age of 42 in brackets)" and that "after this attack he did well until February 1927"—this date to begin a new paragraph, and then perhaps other dates and other new paragraphs, until finally, we come to what is the present illness.

"Saturday, November 23, 1935, at a football game"—and then shortly after that

"Nov. 25, 1935 (age 52), admitted to the hospital with these complaints":

Such an arrangement is easy to follow and if the dates at the beginning of each paragraph are underlined, a "summary" is provided automatically.

A second "trick" in history taking is to account for all the time. The young woman's asthma began in

3. Stevens, F. A.: A Comparison of Pulmonary and Dermal Sensitivity to Inhaled Substances, J. Allergy 5:285 (March) 1934.
4. Cooke, R. A., and VanderVeer, Albert: Human Sensitization, J. Immunol. 1:201 (June) 1916.

October 1925 and was persistent until March 1926, but then came an interval of two years when she had no further asthma. Why was this? The explanation of the free period is often quite as important as is the explanation of the attack itself, and, sure enough, it was found in this instance that the patient was brought up on a farm, went away to work, and was perfectly well while living in the city. Later she married and shortly afterward asthma began again, presumably because of another change in her environment and the consequent exposure to dusts, which were evidently similar to the dusts on the old farm.

Changes in residence, and the effect on the asthma, or the lack of effect, often provide the essential clue. When vacations, business trips or pleasure trips are accompanied by a considerable relief or a disappearance of the asthma, the fact is strong evidence that by going away the patient has been able to escape from a dust that was causing trouble at home. Formal moves to a new residence are of less importance because the cat or dog, as well as most of the furniture, usually move at the same time. Hospital admissions are especially important. Not only does the patient escape from his home, but he lands in an environment in which experience shows that almost all the extrinsic cases become asthma free in a period of five days. The dates of every change in environment—the beginning and also the end of vacations—should be incorporated in their chronological order in the history. "Last August on a five days motor trip, the patient was much improved" and now in the hospital he is again free from asthma. Such a clear cut relationship between asthma and environment revealed by the history throws a strong light on the cause of the trouble.

Changes in occupation may be quite as important as changes in residence. Bakers, cooks, grain dealers, barbers, textile workers and leather workers as well as hostlers, furriers, dog and cat fanciers and those who handle rabbits, guinea-pigs, rats and mice in scientific laboratories may become sensitive to the dusts in their occupational environment. The dates in the history should show when the occupation began and when it was interrupted. Here is a barber sensitive to orris powder and with strongly positive skin tests. The diagnosis appears easy until it is known that he has not worked in the barber shop for six months or more and yet his asthma continues. On the other hand, Peter R. has asthma only when he makes lobster salad in the kitchen of a big hotel.

When the patient has lived always at home with no vacations or travels and no change in occupation, a study of the history is more difficult chiefly because of the absence of history. Under these conditions the asthma has usually been persistent from month to month and week to week. In such a case the diagnosis is difficult unless additional methods of study are employed. These are not concerned with history taking so much as with the care of the patient, but nevertheless they often play an important part in the making of the diagnosis and it is therefore proper to consider them here. The procedures could be called "making history." Their nature will become apparent when the new experiences regarding environment and its various factors are explained.

"Allergic cleanliness" is a significant expression, first used by my associate Dr. Colmes. "Allergic cleanliness" indicates the elimination of those dusts likely to cause trouble in the patient's environment. Any live animal may cause trouble. The removal, however, will not do good unless it is remembered that animal dusts may remain adherent to sofa pillows, rugs, blankets, riding breeches and similar items. Grandma's cat and its hairs "all over the house" is an excellent example. A college boy had asthma only on the days when his roommate rode horseback. Cotton, kapok and feathers, as the common stuffings of modern furniture, may each or all be exciting causes of asthma. "House dust" becomes interesting from several points of view.

There are several methods of study. First, the patient can be moved away from home for a trial period of observation. Almost every one has relatives or friends who can take him in to live with them for a trial period of a week or two, to see how the change in environment will affect the asthma. Better still, the patient can enter the hospital, where the treatment will consist chiefly of living in the hospital with its linoleum floors, painted walls, sterilized hair mattress, clean bedding, absence of animals and general freedom from household dusts. An analysis of seventy-five extrinsic cases [5] admitted to the wards of the Massachusetts General Hospital showed that all but two of the patients in this group lost all their symptoms within a period of five days.

Secondly, small samples pulled out from the stuffing of chairs, sofas, mattresses and pillows are often helpful, when their significance is understood.

Cotton may be harmful at times, especially if it is dusty and dirty, and full of whole or broken seeds.

Kapok ("silk floss") is poor stuff. Its fibers are small and soft, but soon they become dry and brittle and break down into a fine dust, which escapes through the casing in quantity. The beading along the mattress edge will be full of it. Kapok pillows lose so much of this dust that they lose weight rapidly and become lumpy. Soggy, flabby kapok pillows can be recognized across the room. They cause asthma often. Kapok that is fresh and new is not harmful, for the fibers are intact. New kapok pillows may bring relief to asthma. Soon, however, in a few months, the disintegration starts. In a recent study, Wagner and I [6] have found that the alcohol precipitate of a water extract of new kapok contains 0.06 mg. of total solids and little if any nitrogen, whereas a similar precipitate of kapok dust using aliquot quantities contains 0.3 mg. of solids and 0.004 mg. of nitrogen. This finding is quite in line with the previous work of Milton B. Cohen,[7] who found a similar and marked difference in chemical constitution as well as in skin test activity between new and old cotton linters. The cause of this breakdown in vegetable fibers is of considerable practical importance and is under investigation now.

Fibers of animal origin—hair, wool and silk—are much more resistant and stable. No doubt this is the reason why they seldom cause asthma. Horsehair that has been washed and curled is, in my experience, always safe and satisfactory. Patients with horse asthma can sleep on horsehair mattresses without symptoms. Evidently, the washing and curling processes have removed all the dander.

A study of the samples of furniture stuffing may indicate at once which articles should be eliminated and which other articles are probably safe. To find that the pillow or mattress is stuffed with old, broken down kapok may be all that is necessary for diagnosis and treatment. The list of patients relieved by the elimina-

5. Rackemann, F. M.: Chronic Severe Asthma: A Study of a Group of Cases Requiring Hospital Treatment, J. A. M. A. 99:202 (July 16) 1932.

6. Wagner, H. C., and Rackemann, F. M.: Kapok: Its Importance in Clinical Allergy, J. Allergy, to be published.

7. Cohen, M. B.; Nelson, Fell, and Reinarz, B. H.: Observations on the Nature of the House Dust Allergen, J. Allergy 6:517 (Sept.) 1935.

tion of such old kapok from their bedding is already considerable. A doctor came home tired each night. After supper he sat in a certain green plush chair and soon began to wheeze. History showed that in case he was called out again or in case he sat in another room, that night he did not wheeze. Samples showed that the chair was stuffed with cotton which was old and dusty. The chair was eliminated and his asthma has been immensely better since then. He is not "cured," however, because he is also sensitive to dogs, both by skin tests and by clinical experience, and although he has no dog in his own house, he meets dogs in other places. He is under treatment with dog hair extract.

The samples can be used in another way. If each is placed in a test tube and then a small quantity of Coca's fluid or other slightly alkaline salt solution is added and stirred for a few minutes, the resulting few drops of crude extract can be used directly for skin tests. A drop taken out with an applicator is placed on the arm and then a small scratch is made through it. Extracts of several different substances should be made and tested af the same time so as to compare them one with another and demonstrate that the skin is not reactive to "everything." Often a positive reaction with wheal and erythema will be seen to develop in about fifteen minutes around one of the tests. Such a reaction does not necessarily prove that the corresponding substance was the precise cause of asthma but at least the reaction is reassuring. Proof comes only by showing that the asthma goes when the article is eliminated and comes back when it is returned. Clinical experiments are more reliable than skin tests. "The proof of the pudding is the eating."

Thirdly, the practice of visiting the patient's home is always worth while, and often essential. Mrs. F. had asthma of severe persistent type, unrelieved by any treatment. On admission to the hospital she became well promptly, and at a convalescent home this improvement continued until she fairly "blossomed." Back in the old flat, asthma returned the first night. Her flat was visited and it was discovered that she and her husband had five children but only three beds, all of them stuffed with cotton or kapok mattresses and pillows. Mr. F. came home tired and slept in a small side room by himself. Mrs. F. was in the middle of a large double bed with kapok mattress, sitting up most of the night, gasping for breath, with a child asleep on each side of her. The other bed was also double size and the three other children slept crossways on it. The situation looked pretty hopeless. However, it was arranged that Mr. F. should take his turn at sleeping with the children so that Mrs. F. could have the single room. This room was thoroughly cleaned with soap and water; the mattress was discarded entirely and a "fairy godmother" was glad to provide a new hair mattress. Since then Mrs. F. has been free from asthma, and this in spite of the fact that Mr. F. has now lost his job and money for food is even less than before. Anxiety and worry among other nervous factors can be excluded so far as the asthma in the case of Mrs. F. is concerned.

In the case of Joe P., aged 6, a visit to the home showed that the boy with asthma was sleeping on a kapok mattress while sister Mary, age 4, had a hair mattress. Since the children have exchanged rooms and mattresses, Joe's asthma is greatly improved.

In the case of Mr. T. the history showed that the trouble at home might well depend on a new parlor "set." The onset had coincided tolerably well with the purchase of a new sofa and the two chairs, and in the hospital Mr. T. had become free from asthma promptly. The new sofa and the two overstuffed chairs were therefore put in an upper room and the door was kept closed. Since then, Mr. T. has had no more asthma. He has gained 40 pounds (18 Kg.) and has gone back to his job. The clue to his successful treatment was in recognizing the close relation between his asthma and his environment. It paid to make history by sending him to the hospital as a test of possible dust factors at home.

ECZEMA

The suggestions that have been given apply to asthma and they apply to eczema as well, particularly to that type of eczema called "atopic dermatitis," which is often associated with asthma or hay fever in the same individual, which goes with a positive family history of allergy, and which often has positive skin tests of the immediate type. The distribution of the lesions to face and neck and to the antecubital and popliteal spaces is very characteristic of this type of eczema. The condition is common. The exciting cause reaches the skin through the blood stream "from underneath," in contrast to the group of contact dermatitis in which the cause reaches the skin directly "from on top."

Foods cause atopic dermatitis, but dusts also can cause it, and therefore, like asthma, this type of eczema may vary with the environment. Eczema often clears in a hospital. A college student developed eczema in October 1934, which was bad enough to drive him home in November. At home he had treatment with x-rays and his skin cleared. In January, back at college —more eczema; home again—more x-rays, and recovery again until he returned to college. In June, more x-rays and with "greater success" because he was free all summer. October, however, eczema came again. Every one was interested in the roentgen treatment; no one was interested in the simple fact that in college he had eczema and out of college there was no eczema. Soon it was found that he had a couch or day bed and several pillows, all of doubtful origin; that he also wore a certain coat in college and not elsewhere. These things have now been eliminated and the eczema is very much improved. Roentgen treatment is quite unnecessary. When first seen by his doctor, there was not enough history to make a proper diagnosis. Now, of course, it is easy to look back a year and see how unfortunate it was that, when he first went home, more time was not given for the change in environment to assert itself—more time for more history. Subsequent events have demonstrated that success in the diagnosis and the treatment of his eczema depended on nothing more complex than his clinical history.

The methods of Sherlock Holmes are needed in eczema as in asthma and they begin with the history and its dates.

SUMMARY

1. The clinical history is of primary importance in the diagnosis and treatment of the "allergic" diseases.

2. Dates in the history are not only the accurate expression of time but are essential to the successful study of hay fever, of asthma and of eczema.

3. To account for all the time is to learn in many cases not only why the attack began but why it ended, and then later why the free period in turn ended.

4. When the history is not long, or contains only a few events, further history can be "made."

5. In atopic dermatitis (eczema) the history may be quite as important as it is in asthma.

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RUPTURE OF THE KIDNEY FOLLOWING PYELOGRAPHY

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Rupture of the kidney following external violence, spontaneous rupture of a pathologic kidney and rupture of the ureter after instrumentation have been frequently described in the literature, but there is a paucity of reports on postpyelographic rupture.

It is indeed amazing that with the morbidity produced in the early pyelographic days more cases were not reported. It is possible that the condition was undiagnosed, or perhaps there was a hesitancy on the part of the cystoscopist to report such unfortunate occurrences.

Hunner [1] reported twenty-one ruptured ureters in 2,000 catheterizations. Henline [2] described several cases of rupture of the ureter following instrumentation (ureteral catheter, bougie and other procedures). He

Fig. 1 (case 1).—Extensive extravasation following pyelography.

brought out the interesting fact that perforation of the normal ureter is difficult; in all his cases the ureter was diseased or associated with a pathologic condition such as calculus.

Similar cases were reported by Sargent,[3] Noble [4] and Geisinger.[5] Most of these cases of perforation of the ureter followed instrumentation and not overdistention with ureterographic mediums.

Pyelographic reactions for many years were so frequent that a cystoscopy and pyelography were considered a hospital procedure. Keyes and Mohan [6] in 1915 described the pathologic changes produced in kidneys by the then popular but extremely irritating mediums.

1. Hunner, G. L., cited by Henline.[2]
2. Henline, R. B.: Traumatic Injuries of the Upper Urinary Tract Following Instrumentation, J. A. M. A. **102**: 182-188 (Jan. 20) 1934.
3. Sargent, J. C.: J. Urol. **24**: 513-515 (Nov.) 1930.
4. Noble, C. P.: Am. Med. **4**: 501 (Sept.) 1902.
5. Geisinger, J. F.: Extravasation from the Ureter, Ann. Surg. **93**: 554-550. (Feb.) 1931.
6. Keyes, E. L., Jr., and Mohan, Herbert: The Damage Done by Pyelography, Am. J. M. Sc. **149**: 30-45, 1915.

PYELOVENOUS BACKFLOW

With the discovery by Lee-Brown,[7] Hinman,[8] Fuchs [9] and others [10] of pyelovenous backflow, considerable light has been thrown on the subject. Studies were made on intrapelvic pressure and the hydromechanics of the pyelovenous phenomenon to the extent that today pyelographic accidents occur much less frequently. If proper precautions are taken, such accidents should even be rare.

Solutions such as collargol, thorium nitrate, and even the supposedly innocuous sodium iodide of recent years, have been almost entirely discarded. Pyelographic reactions following the use of these solutions have varied from a mild rise of temperature to severe fulminating sepsis, at times necessitating nephrectomy, even in the best of hands.

With the advent of skiodan, hippuran and similar organically bound iodine products used intravenously, these solutions have been put to use for retrograde pyelography with absence of toxicity and without reaction. Bilateral pyelograms with these solutions have been repeatedly used without ill effects; there is comparatively complete absence of pain.

The practical application of a knowledge of pyelovenous backflow lies in the following: Overdistention of the pelvis by pyelographic mediums will cause intrarenal extravasation, throwing into the venous circulation not only the medium but also pus, blood and micro-organisms in infected cases. Hence the rise of temperature occasionally following pyelography; hence the occasional fulminating illness, sepsis and death.

In spite of the comparative safety of the newer solutions, rupture of the kidney is a complication fraught with danger.

PREVENTION OF RUPTURE

The normal capacity of the renal pelvis is from 4 to 6 cc. An increase over this amount denotes pyelectasis, and injection of the pyelographic medium must proceed with caution. If a manometer is used, pressure should not exceed 30 mm. of mercury. If not, observation of the patient's symptoms should be carefully noted. At the first sign of an ache in the renal area, the flow must be interrupted. To determine the capacity of the pelvis, aspiration should be a routine procedure. The operator can then, with a fair degree of accuracy, determine the maximum quantity of fluid to be injected.

It is particularly necessary to use caution in badly infected kidneys. Just as in perforation of the ureter, the diseased kidney is more prone to rupture. The mucosa of the pelvis and the walls of the venules and collecting tubules, in the presence of infection, have undergone anatomic changes, making rupture more than a possibility. Pyelography in the presence of an acute or subacute infection should be avoided if possible, and the kidneys visualized by the excretory method.

SIGNS AND SYMPTOMS OF RUPTURE

Pain is a constant symptom; this may be localized or general. Nausea, vomiting, fever, chills and elevation of the pulse are commonly observed. There may be a diminished output of urine with the appearance of a mass in the renal area. Rigidity or abdominal disten-

7. Lee-Brown, R. K.: and Hinman, Frank: Pyelovenous Backflow, J. A. M. A. **82**: 607 (Feb. 23) 1924.
8. Hinman, Frank: Pyelovenous Backflow at the Time of Pyelography, Surg., Gynec. & Obst. **44**: 592-600 (May) 1927.
9. Fuchs, Felix: Pyelovenous Backflow in the Human Kidney, J. Urol. **23**: 181 (Feb.) 1930.
10. Scott, Douglas: The Effects of Pressure of Pyelographic Media, J. Urol. **30**: 39-47 (July) 1933. Hullsiek, R.: Pyelovenous Backflow at the Time of Pyelography, ibid. **25**: 435 (April) 1931. Shapiro, I. J., and Veseen, L. L.: Untoward Results in Bilateral Pyelography, ibid. **24**: 621-635 (Dec.) 1930.

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tion are later signs. Tenderness over the kidney is always present. All symptoms and signs will vary with the extent of the rupture.

The diagnosis is easily made on examination of the pyelogram. The extravasation may be extensive or localized to a small area perinephrically.

TREATMENT

When the tear is small and resultant leakage is moderate, the amount of extravasation is slight, the tissue reaction is prompt and the tear heals quickly. Symptomatology will accordingly be less severe, and there is less danger of a perinephric complication.

Should the clinical course show no improvement, or should there be a steady increase in signs and symptoms, surgery is indicated for incision and drainage of the perinephric collection.

When the rupture is severe and there is extensive extravasation, the condition calls for immediate surgery. Depending on the condition of the patient and on the pathologic changes discovered, the procedure will vary.

The left catheter was kept in situ and a left pyelogram was done, 35 cc. of skiodan being used. It showed a marked enlargement of the left kidney. The contours were not very clearly demonstrated, however. There was a large opaque calculus in the upper pole of the left kidney about 1¼ inches (3.2 cm.) in diameter. The pelvis and calices were incompletely filled and were very distorted. These changes were the result of a large calculus in the left kidney with associated hydronephrosis.

The urea nitrogen was 160 mg. per hundred cubic centimeters, creatinine 1.76, and sugar 355. The urine was negative for sugar but showed many pus cells. Urine from the left kidney yielded pus and Staphylococcus albus; from the right kidney, an occasional white blood cell.

The left kidney catheter remained in situ for two days and drained well. Then it slipped out of position. The patient still appeared to be too ill for surgery, such as a contemplated left nephrostomy. Cystoscopy was repeated and the indwelling left ureteral catheter was reinserted. At this time it was noted that there was a fair return of indigo carmine from the right side in twenty minutes but none from the left.

The left pyelogram was now repeated, 75 cc. of skiodan being used.

Fig. 2 (case 2).—Appearance before pyelography.

Fig. 3 (case 2).—Appearance of normal pyelogram.

Fig. 4 (case 2).—Extravasation through the superior calyx following pyelography.

Ample drainage alone, nephrostomy or nephrectomy must be considered.

REPORT OF CASES

The following three reports of rupture are illustrative:

CASE 1.—Mrs. Mary O., aged 63, admitted to the Kings County Hospital, May 4, 1934, in the department of genito-urinary surgery in the service of Dr. F. L. Senger, had fallen on her abdomen, four months before, while carrying a heavy weight, and had had abdominal pain since. One week before admission this became severe, necessitating hospitalization. Pain was particularly severe in the left lower quadrant and left lumbar region. There was no vomiting and no urinary symptoms were present.

On examination the patient was acutely ill, with a temperature of 102 F. and a white blood cell count of 32,000 with 85 per cent polymorphonuclear leukocytes. The abdomen showed a mass extending from the left upper quadrant to the iliac crest, moderately tender and apparently renal. There was exquisite left costovertebral tenderness.

Cystoscopy revealed a hazy bladder urine and a moderate generalized cystitis. The indigo carmine test, intravenously, showed no dye from either side after fifteen minutes. Bilateral catheterization showed no definite obstruction on either side. From the right, clear urine was obtained; from the left, tooth-paste pus.

That night the patient became weak and listless. The pulse was only fair. Drainage from the catheter was scant and bloody.

The pyelogram revealed that after injection of the fluid a large amount was noted above and slightly below the iliac crest. A large part was in markedly dilated calices and a considerable amount appeared to be extrarenal. There was marked dilatation of the ureter, which ended abruptly at the lower sacro-iliac level (fig. 1).

Operation was performed immediately. A lumbar incision was made in the usual manner; a stab wound was made in the large renal mass, yielding 500 cc. of foul smelling, bloody and purulent fluid. A nephrostomy tube was rapidly inserted. The patient's condition was precarious and no attempt was made to explore or manipulate further. Death followed shortly afterward.

At autopsy the following changes were related to the left kidney: A large amount of dirty green fluid with a foul odor was removed from within; around the kidney toward the external surface was seen an area of old hemorrhage, which adhered to what was left of the renal capsule. The entire perinephric structure appeared to be necrotic and little architecture of the kidney remained. There was foul smelling pus in the pelvis. A stone the size of a walnut was found in the pelvis. There was necrosis of the entire parenchyma. The ureter was not identified, owing to the great distortion caused by the necrotic process.

The right kidney showed cloudy swelling.

There was early bronchopneumonia of the right lower lobe and a septic spleen. The cause of death was perinephric abscess, sepsis and bronchopneumonia.

This was a case of calculus in a tremendous pyonephrotic sac. Visualization by a retrograde pyelogram with 35 cc. of skiodan failed to fill the kidney but was definitely sufficient to establish the diagnosis. Further pyelography was contraindicated, and the amount injected was entirely excessive.

Fig. 5 (case 3).—Intravenous pyelogram showing evidences of right renal infection.

Case 2.—N. L., a woman, aged 25, single, admitted to the Kings County Hospital, Aug. 4, 1935, had had cramplike abdominal pains for several months. They recurred daily and were generalized, although at times they seemed persistently localized to the right side of the abdomen. There were no chills or fever and no urinary symptoms.

In May 1935 an appendectomy had been performed at the Knickerbocker Hospital but the symptoms recurred. The menses were irregular and painful.

Physical examination revealed moderate tenderness in both upper quadrants. No masses were palpable. There was slight tenderness in both costovertebral angles. There was moderate right abdominal tenderness but no spasticity. Rectal examination was negative. The temperature was normal, the blood chemistry was negative and the blood count was normal.

The bladder was normal, with normal function on each side with no obstruction to either kidney. August 6 the urine was normal. Roentgenograms and bilateral pyelograms were negative (figs. 2 and 3).

The diagnosis at this time was "Negative urologically. Psychoneurosis."

Following cystoscopic study there was a reactionary rise in temperature to 104 F., which did not subside for eleven days. Associated therewith, the patient had persistent generalized abdominal pains, particularly on the right, with occasional chill. There was tenderness present in the right costovertebral angle.

The Wassermann reaction was negative and a roentgenogram of the chest was negative.

A small shadow of the gallbladder was seen after administration of the dye, indicating abnormal physiology of the biliary system with or without stones.

The barium sulfate enema study was negative.

Urinalysis was done, August 12; albumin was 3 plus and there were from 25 to 30 white blood cells per high power field. Examination of the blood showed 3,850,000 red blood cells with hemoglobin 67 per cent. White blood cells at this time numbered 18,600, with 86 per cent polymorphonuclear leukocytes.

September 2 the temperature was still low grade. The impression was that there was a pathologic condition of the gallbladder, and the patient was accepted by the surgical service. September 6 there was no clinical evidence of a disorder of the gallbladder and on the 11th the pain localized to the right flank near the costovertebral angle without radiation. There was no pain in the right upper quadrant. The patient was referred back to the urology service.

September 12, cystoscopy was repeated. There was turbid urine from the right kidney and clear urine from the left. The kidney functions were good. A number 7 catheter was left in the right kidney following right pyelography.

It was now thought that the condition was right pyelonephritis (subsiding).

The pyelogram revealed a pyelovenous backflow with enlargement and marked irregularity of the superior calix, suggesting extravasation or abscess. The left side was normal (fig. 4).

The evening of the cystoscopy the patient became extremely ill. The temperature was 103 F. On September 16 the condition was worse with chills, high fever, severe tenderness over the kidney and apparent sepsis.

At operation, September 17, the right kidney was adherent to the deep fascia and was not delivered. There was a definite abscess enveloping the upper pole, incision into which yielded a large amount of yellow green pus. The abscess communicated with the upper calix. Ample drainage was established.

The patient made an uneventful recovery. The temperature subsided in from four to five days.

This case is illustrative of the evident dangers of pyelography, in the presence of acute or subacute renal infection. The diagnosis was definitely established of a subacute right pyelonephritis. Visualization, if essential, could have been accomplished by the intravenous route.

Case 3.—E. C., a man, aged 32, admitted to the Jewish Hospital, in the urologic service of Dr. Paul Aschner, Feb. 18, 1935, complained of pain over the right lumbar region of two weeks' duration, blood and pus in the urine, and fever. Five years before he had had right renal colic and, following a cystoscopy, voided a small stone.

The Murphy sign was positive on the right side of the abdomen with moderate tenderness in the right upper quadrant.

The temperature was from 102 to 104 F. with an associated rise in the white count. Blood chemistry and the Wassermann reaction were negative.

Cystoscopy, February 19, showed a congested and edematous right ureter orifice (which may have been the result of a recent cystoscopy performed before admission). The indigo carmine test was normal on the left, but there was no return from the right in fifteen minutes. A number 6 catheter easily passed obstructions at 2 and at 25 cm. up the right ureter. There was a gush of purulent urine from the right pelvis, with a steady hydronephrotic drip. The catheter was left in situ and the temperature dropped to normal in two days.

Fig. 6 (case 3).—Extravasation at ureteropelvic junction following pyelography.

On February 21 a roentgenogram and retrograde pyelogram were done, 20 cc. of skiodan being used. No shadows suggestive of calculus were seen. The right renal pelvis was considerably dilated; there was an irregularity or fuzziness of the calices suggestive of intrarenal extravasation or tuberculosis.

Following this, the temperature rose again to 102 F., the catheter failed to drain properly and a second cystoscopy was done to reinsert the right ureteral catheter, February 25. The temperature then declined to normal and the catheter was removed March 3.

March 9 an intravenous pyelogram revealed a normal left kidney. On the right there was a marked hydronephrosis with blunted calices. The irregularity was somewhat bizarre in appearance, possibly because of inspissated pus (fig. 5).

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The urine was negative for tubercle bacilli on several examinations. The right kidney urine showed Staphylococcus albus. The phenolsulfonphthalein test, February 25, returned 39 per cent.

On March 12 the temperature was normal and the patient felt well.

A cystoscopy and retrograde right pyelography was performed at this time, 40 cc. of skiodan being used. This study revealed (1) hydronephrosis and (2) a rather large dense shadow slightly inferior to the right renal pelvis, which was suggestive of a small sinus tract or cavity filled with the dye, which may have been due to perforation of the kidney or renal pelvis (fig. 6).

For three days following this there was a rise of temperature to 101 F. and thereafter a low grade temperature daily.

The diagnosis was infected right hydronephrosis with right pelvic extravasation.

Accordingly, operation was performed on March 16: The kidney was found to be twice normal size. There was a marked perinephritis with marked inflammation and edema of the periureteral and peripelvic tissues, incision into which yielded about 1 ounce (30 cc.) of pus. The upper ureter was exposed and incised about 5 cm. below the ureteropelvic junction. A number 8 ureteral catheter was passed into the pelvis through this incision and fastened in situ. The kidney was decapsulated, revealing a few small cortical abscesses. Ample drainage was provided.

April 3 the patient felt well and was out of bed with a normal temperature. A cystoscopy showed a fair indigo carmine return from the affected kidney and the hydronephrotic drip was less marked (15 cc. being obtained on aspiration). The phenolsulfonphthalein test, April 7, was 52 per cent.

The patient was discharged, April 7, and was to receive further dilations and pelvic lavage on the outside.

This case pertinently reveals the extreme danger of pyelography in the presence of a subsiding pelvic infection.

SUMMARY

1. The capacity of the renal pelvis must not be exceeded in pyelographic injection.

2. Aspiration of the pelvis should be a routine procedure to determine the capacity.

3. To perform pyelography on badly infected kidneys is a dangerous procedure.

4. Whenever possible, in the presence of infection, acute or subacute, the pelvis should be visualized by the excretory route.

5. If the retrograde method is essential, great care must be used. If there is no apparent pain or discomfort after from 15 to 20 cc., the operator should cease and visualize the pyelogram before attempting an injection of a larger quantity of the medium.

6. Surgery is usually indicated when the urography shows extensive extravasation.

7. In three cases ruptured kidney followed the indiscreet use of the pyelogram.

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The Time Food Remains in Stomach.—The length of time spent by food in the stomach depends in part upon the proportions of carbohydrate, protein and fat eaten. In experiments where each is eaten separately, protein food stays longer in the stomach than carbohydrate, fat longer than protein, and mixtures of fat and protein longest of all. In a mixed diet, then, the greater the proportion of fat the longer the food stays in the stomach. This action of fat may be either disadvantageous or advantageous according to circumstances. Excessive fat may retard digestion unduly and lead to discomfort; on the other hand, too little fat may result in such early emptying of the stomach that hunger pangs are felt too shortly after the meal is eaten.—Sherman, H. C.: Food and Health, New York, Macmillan Company, 1934.

THE ANTERIOR PITUITARY-LIKE HORMONE

A CLINICAL STUDY OF ITS EFFECTS IN ACNE VULGARIS

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In a previous paper [1] a preliminary report concerning the effect of pregnancy urine extract [2] on acne vulgaris was made. This paper comprises a further study of that problem.

A review of the literature brings to light several theories regarding the cause of acne but little clinical or experimental evidence in support of them. Constipation, improper diet, lack of exercise and the normal aversion of youth to soap and water are all mentioned in the older textbooks [3] as probable causes of the condition, but no convincing evidence of their responsibility

Fig. 1.—Biopsy specimen of skin from patient A. S. before treatment, under low power. There is marked hyperplasia of the epidermis at A. Higher magnification shows many mitotic figures in that area.

for it is to be found. Later the microbacillus of Sabouraud was regarded as the specific etiologic factor in the disease until evidence accumulated that "it may be found in myriads in the sebaceous material expressed from the follicles of the nose of practically all adolescents and adults." [4] Schamberg [4] suggests that it may be "merely a saprophyte under ordinary conditions and becomes noxious only in a soil prepared by other factors," and he points out that staphylococcus is present in all acne pustules yet is certainly not the cause of acne.

From the Medical Department, New England Medical Center.

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The author is indebted to Dr. Rudolf Osgood for his help and opinion in the study of the biopsy specimens.

1. Lawrence, C. H., and Feigenbaum, Jacob: The Treatment of Acne Vulgaris with Pregnancy Urine Extract: A Preliminary Report, New England J. Med. 211:1213 (June 27) 1935.

2. Antuitrin-S was used in these studies.

3. Stellwagon, H. W.: Diseases of the Skin, ed. 4, Philadelphia, W. B. Saunders Company, 1906. Ormsby, O. S.: Infectious Diseases of the Skin, ed. 4, Philadelphia, Lea & Febiger, 1926.

4. Schamberg, J. F.: Research Problems in Dermatology, Arch. Dermat. & Syph. 4:293 (Sept.) 1921.

Certain changes in the skin of acne patients, which may "prepare the soil" or may constitute the entire pathologic condition, were, I believe, first described by Unna [5] in 1896. The earliest change noted by him consists of "a superficial hyperkeratosis of the epidermis which, extending into the follicle mouths, leads to the formation of comedones. In this stage the horny and granular layers become thickened. At the mouths of

Fig. 2.—Biopsy specimen of skin of patient F. A. before treatment under low power, showing hyperplasia of epidermis near mouth of sebaceous dust (*A*) and keratinized epidermis at *B* and *C*, blocking the lumen. Normal gland tissue at *D*.

the follicles there is always found, instead of a filter-like depression, a slight or marked elevation, formed of horny lamellae, which is caused by pressure from beneath, of the horny plug." These are the comedones, which are "the product of a hyperkeratosis extending from the general surface to the mouths of the follicles, and contain, in addition to horny substance, normal sebum. They are consequently in no way the result of an abnormal secretion of sebum."

5. Unna, P. J.: The Histopathology of Diseases of the Skin (translated by Norman Walker), New York, Macmillan Company, 1896.

"There must be in acne," says Unna, "some permanent irritant of the follicles, acting more or less deeply in the cutis, which induces a chronic hyperplastic inflammation." The epithelium participates, he believes, in the general hyperplasia. He also calls attention to the characteristic limitation of acne to the period of puberty.

Little interest was apparent in this obvious chronological relation until 1921, when Hollander [6] advanced the theory that acne is caused by an endocrine imbalance brought about by the demands of puberty. This imbalance was, according to him, one of thyroid activity secondary to gonad activity.

In the same year Schamberg [4] wrote: "General experience will support the statement that practically all young female patients with acne exhibit a menstrual exacerbation of the eruption. . . . When the phenomena of the menstrual acne relapse is considered in conjunction with the initial onset of acne at the approach of puberty, the inference appears to be justified that an internal secretion of the sex glands or some other endocrine structure energized by the gonads is an etiologic factor of importance."

Other investigators (Pick,[7] Bloch,[8] Mumford,[9] Van Studdiford [10]) have added confirmatory evidence to the support of the idea that the fundamental cause of acne is to be found in an endocrine imbalance incident to puberty.

Pick [7] calls attention to the Bavarian colloquial term for acne lesions "chastity pimples" and states his belief that acne is connected with the function of the "puberty glands."

Bloch,[8] in a careful study of more than 4,000 girls and boys between the ages of 6 and 19, found some degree of acne in 59.6 per cent of the former and in 68.5 per cent of the latter. The severe grades were encountered in 8 per cent of the girls and in 20 per cent of the boys. He states that the process in the body which is responsible for the occurrence of menstruation and of the growth of pubic and axillary hair likewise determines the appearance of acne. "This process," he says, "is the function of the gonads, and in this sense acne is to be considered as a hormonal skin disease."

Mumford [9] calls attention to the fact that in a series of 100 female patients menstrual irregularity occurred or had occurred at the onset of the acne in 40 per cent, a finding which he regards as evidence that the eruption is a symptom of endocrine imbalance.

In our earlier paper, Feigenbaum and I [1] reported the results of treatment of fifteen patients with acne by injections of antuitrin-S. The present paper comprises a study of thirty patients by the same method, and a discussion of the results obtained.

So far as they parallel those of authors already cited, our observations are in essential agreement with them and a detailed comparison seems unnecessary.

Three fourths of the patients were between 10 and 20 years of age, and in the remaining fourth the acne had appeared during adolescence in all but two, in both of whom it was preceded by changes in the rhythm and character of the catamenia. The onset of the eruption

6. Hollander, Lester: The Rôle of the Endocrine Glands in the Etiology and Treatment of Acne: Preliminary Report, Arch. Dermat. & Syph. **3**: 593 (May) 1921.

7. Pick, R.: Acne und innere Sekretion, Arch. f. Dermat. u. Syph. **131**: 350, 1921.

8. Bloch, Bruno: Metabolism, Endocrine Glands and Skin Diseases, with Special Reference to Acne Vulgaris and Xanthoma, Brit. J. Dermat. & Syph. **43**: 61 (Feb.) 1931.

9. Mumford, R. B.: Acne Vulgaris, a Symptom Not a Disease, Brit. M. J. **1**: 141 (Jan. 28) 1933.

10. Van Studdiford, M. T.: Effect of the Hormones of the Sex Glands on Acne, Arch. Dermat. & Syph. **31**: 333 (March) 1935.

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was between the twelfth and fourteenth year in more than two thirds of the patients, and in only one did it appear as early as the tenth year. Its severity was rated as mild in five patients, moderate in thirteen and severe in twelve. The eruption was confined to the face in fifteen cases, to the face and neck in two, and in thirteen was distributed over the face, neck, chest and back.

Ten of our patients were males, twenty were females. In the latter group a definite history of an exacerbation

Fig. 3.—Biopsy specimen of skin of patient F. A. before treatment, under low power, showing keratinization (*A*), hyperplasia of epithelium (*B*) and dilatation of the gland.

of the eruption at the menstrual period was obtained in eight patients; eleven had never noted any such relation, and one stated positively that it did not exist.

The menstrual periods were normal in only six of the twenty females, the remainder having disturbances of rhythm, duration or amount of flow, or definite dysmenorrhea. Oligomenorrhea was encountered more frequently than any other type of disturbance (present in eleven patients) but four patients had severe menorrhagia.

Genital development, as observed in the males, was normal in nine patients. One showed definite genital hypoplasia. Satisfactory pelvic examinations in young girls are difficult to obtain, and definite criteria of normal development during adolescence are lacking, so that our data concerning genital hypoplasia are meager. Three adolescent females showed, in the opinion of the examiner, definite genital hypoplasia, and the incidence of oligomenorrhea would suggest its presence in a considerably larger number.

No organic visceral disease was found in any patient in our series. The only physical finding of possible significance was underweight of more than 10 pounds (4.5 Kg.) in nine patients—about one third of the group.

Studies of the urine, blood, and basal metabolic rate were made as a routine. The urine showed no significant departure from normal in any case. The Hinton test was uniformly negative. Mild hypochromic anemia was found in four patients, the only departure from a normal blood picture. Blood cholesterol was normal in sixteen of twenty patients, and slightly increased in four. The basal metabolic rate was normal in eighteen patients, between minus 10 and minus 20 in four, minus 29 in one, and between plus 10 and plus 20 in five. In the latter group the increase in metabolism was not accompanied by any other signs of thyroid hyperactivity and was thought to be due to emotional factors. The patients with depressed rates showed no physical or laboratory signs of thyroid deficiency. The fasting blood sugar was normal in every patient. Dextrose tolerance tests were performed on twenty-five patients. Fifteen showed the so-called flat curve indicating increased tolerance, in five the curves were indicative of a moderate depression of tolerance, and in five they indicated normal tolerance. Material for histopathologic study has been obtained from eight patients by biopsy and submitted to Dr. Osgood in our tissue laboratory. The results agree with those of Unna [5] in indicating that the characteristic change in the skin is a superficial hyperkeratosis of the epidermis which blocks the follicle mouths and which represents a chronic hyperplastic process in which the epithelium shares in moderate degree.

Treatment consisted, as in our earlier series, of injections of 2 cc. of antuitrin-S every other day.

Fig. 4.—Patient A. K. before treatment, showing acne of face, absence of axillary and pubic hair, prepubertal breasts, and body configuration.

Injections were omitted during the menstrual periods of the female patients, though in no instance has there been noted any effect on normal menstruation, despite the well known influence of the preparation in disturbances of that function. This lack of effect in normal women has also been observed by Murphy, Shoemaker and Rea.[11] In the patients in whom there was coexisting

11. Murphy, D. P.; Shoemaker, Rosemary, and Rea, Marion: Menstrual Response to Luteinizing Extract of Pregnancy Urine, Endocrinology **18**: 203 (March-April) 1934.

menstrual disturbance, improvement in both acne and menstruation progressed in equal measure, indicating a general effect on bodily economy rather than one localized in the skin. This generalized effect is well shown in patient A. K., a girl 15 years and 6 months old when treatment was begun. In addition to a well marked facial acne she showed definite retardation of

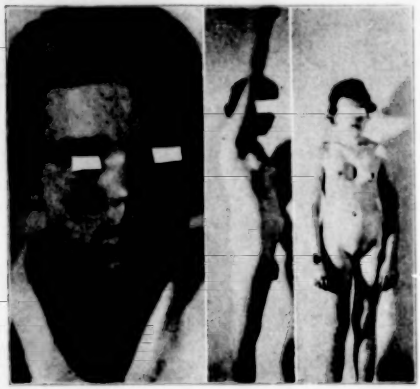

Fig. 5.—Patient A. K. after four months' treatment, showing decrease in acne lesions, development of breasts, and beginning growth of pubic and axillary hair.

physical, mental and sexual characteristics. She had never menstruated, the breasts were prepubertal, and there was no body hair. After thirty days' treatment with antuitrin-S her acne was much improved. After six weeks' treatment there was definite growth of the breasts and a slight growth of pubic and axillary hair. Eight weeks after treatment was begun the acne was

Fig. 6.—Patient F. V., showing acne of face before treatment. Note in addition to papules and small pustules the general "pebbly" appearance of the skin.

greatly diminished, the breasts showed further increase in growth, and she had her first menstrual period.

The duration and amount of treatment necessary to produce results varied greatly in different patients. The factors which determined this variation were apparently the age of the patient and the severity of the disease, but even in patients of identical age and equally severe eruptions a rather wide variation of response occurred. The average dosage in the series has been 3,360 rat units, the maximum 7,700 rat units, in a patient 15 years of age with severe general acne, and the minimum 300 rat units, in a patient 30 years of age with a mild eruption confined to the face and neck. No explanation of this variation is yet apparent, though the indications are that it depends on the gravity of the underlying imbalance rather than on its outward manifestation. In the majority of patients, improvement has been apparent in from two to four weeks, and maximum benefit has been obtained in from twelve to sixteen weeks. Two patients have shown slight relapses, beginning four and six weeks after treatment was stopped and responding promptly to the resumption of treatment. No difference is apparent between the two sexes as regards response to treatment.

Ten patients are regarded as cured, since their acne has not reappeared after two months without treatment. Eleven are much improved, showing at present only an occasional papule, and seven show only moderate improvement, owing partly to as yet insufficient treat-

Fig. 7.—Patient F. V. after eight weeks' treatment. Marked improvement in acne, and loss of "pebbly" appearance of skin.

ment and partly to slow response. One patient has moved away, and one has just begun treatment and was included in the series because of significant features in her case.

COMMENT

The evidence connecting acne with the profound changes in hormonic balance that take place during adolescence is so obvious that it has been overlooked until recently, and even now our knowledge of those changes is too fragmentary to permit identification of the exact endocrine dysfunction which causes that disease. Certain observations, however, can be assembled which narrow the field. The normal basal metabolic rates in 64 per cent of our series of patients with the additional finding of normal blood cholesterol values in 80 per cent of the patients tested seems sufficient evidence to eliminate disturbance of thyroid function as a factor. There is no evidence sufficient to indict the parathyroids, and contrary evidence is offered by our finding normal blood calcium values in six patients. There is likewise no evidence of adrenal disturbance, and the natural history of acne is inconsistent with present conceptions of adrenal function. The normal

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fasting blood sugar values in our patients eliminate a pancreatic disturbance as a probability and leaves for more careful consideration the gonads and the pituitary as possible foci.

Certainly it is the secretions of these two glands which motivate the bodily changes which are defined as puberty and adolescence. Moreover, the work of

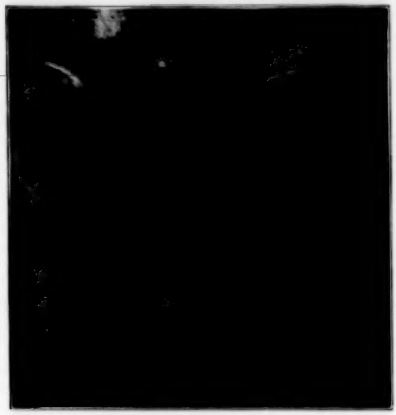

Fig. 8.—Patient J. M., showing acne of chest with marked scarring before treatment.

Evans and his associates,[12] and of Smith,[13] Engle,[14] and Hertz and Hisaw [15] has shown that such changes do not occur in the absence of adequate activity of the anterior lobe of the pituitary and that normal gonadal function is dependent on it. Houssay [16] has also shown that that organ is intimately connected with carbohydrate metabolism. The evidence obtained from our studies, which brings to light a considerable association of acne with physical or sexual retardation and disturbances of menstrual function and of carbohydrate metabolism, furnishes a considerable indication that a hypofunctional disturbance of the anterior pituitary lobe is a factor of importance in the causation of acne. Finally, the response to treatment with a substance that is at least an anterior pituitary-like hormone offers confirmatory evidence of considerable weight. Such a hypothesis would predicate retarded gonadal development in acne patients, and the fact that sexual hypoplasia could be demonstrated by physical examination in only a small number of our patients is not proof that normal physiologic activity was present in the remainder. The work of Rosenthal and Kurzrok [17] indicates that, in female acne patients at least, normal gonadal activity is the exception rather than the rule. They determined quantitatively both the gonadotropic and estrogenic content of the urine of thirty-four young women with acne. The patients' ages ranged between 11 and 33 years, twenty-one being under 20 years old. No gonadotropic substance was found by Zondek's method. Using Kurzrok and Ratner's method for the determination of the estrus-inducing hormone, they found it in normal amounts in only six cases, present in traces in one case and completely absent in twenty-seven cases. These results indicate that, irrespective of the physical observations, a gonadal hypofunction, primary or secondary, does coexist, at least in females, with acne. Primary ovarian hypofunction is uncommon before 20, so that it seems probable that the demonstrated hypofunction is secondary to a lack of the gonad-stimulating hormone of the pituitary. Again the normalization of the menstrual function in our acne patients treated with antuitrin-S lends weight to this supposition.

Treatment of a similar series of patients with anterior pituitary gonadotropic hormone should confirm or refute the theory that dysfunction of the anterior pituitary lobe is the basis of the hormonal imbalance that causes acne, while periodic hormone assays checked by endometrial and skin biopsies should furnish evidence adequate for the final solution of the problem of the rôle played by the gonads. Such studies are now being undertaken in our clinic.

CONCLUSIONS

Abundant evidence exists in the literature indicating that an endocrine imbalance incident to adolescence is

Fig. 9.—Patient J. M., showing condition of chest after five months' treatment.

the major, if not the sole, etiologic factor in acne vulgaris.

From studies made in our clinic, it seems highly probable that this imbalance involves the anterior pituitary gonadal mechanism.

Further study is needed to determine the exact nature of the imbalance.

520 Commonwealth Avenue.

12. Evans, H. M.; Pencharz, R. I., and Simpson, M. E.: The Repair of the Reproductive System of Hypophysectomized Female Rats by Combination of a Hypophyseal Extract (Synergist) with Pregnancy Prolan, Endocrinology **18**: 601 (Sept.-Oct.) 1934; The Repair of the Reproductive System of Hypophysectomized Male Rats by Combination of a Hypophyseal Extract (Synergist) with Pregnancy Prolan, ibid. **18**: 607 (Sept.-Oct.) 1934. Evans, H. M.: Clinical Manifestations of Dysfunction of the Anterior Pituitary, J. A. M. A. **104**: 464 (Feb. 9) 1935.

13. Smith, P. E.: General Physiology of the Anterior Hypophysis, J. A. M. A. **104**: 548 (Feb. 16) 1935; The Hypophyseal Gonadotropic Hormones, ibid. **104**: 553 (Feb. 16) 1935.

14. Engle, E. T.: Luteinization of the Ovary of the Monkey by Means of Combined Use of Anterior Pituitary Extract and an Extract of Pregnancy Urine, Endocrinology **18**: 813 (July-Aug.) 1934.

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MULTIPLE MYELOMAS WITH TUMOR-LIKE AMYLOIDOSIS

A CLINICAL AND PATHOLOGIC STUDY

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The association of amyloidosis with multiple myelomas has been noted with increasing frequency in recent years, having first been reported by Askanazy [1] in 1903. Magnus-Levy [2] in 1933 summarized the literature on the subject and collected thirty-five cases of amyloidosis complicating multiple myelomas, to which he added two more cases recently reported by Chester [3] and by Rosenblatt.[4] These were collected from 150 carefully studied cases of myeloma, or an incidence of about 25 per cent. Of these, localized masses of amyloid simulating tumors were found in ten cases. Since his article, two additional cases have been reported by Rosenheim and Wright [5] and by Randall.[6] In the former, generalized amyloid deposits were found in the bone marrow, liver and spleen, and in the latter the amyloid formed a tumor mass in the wall of the intestine causing an intestinal obstruction. Geschickter and Copeland,[7] in a review of 425 cases of multiple myelomas, do not mention the association of amyloidosis.

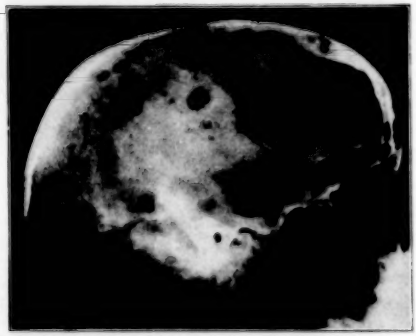

Fig. 1.—Discrete areas of destruction throughout both tables of the skull.

Amyloidosis may be classified as follows:

1. Primary or idiopathic amyloidosis, in which there is no apparent underlying suppurative or neoplastic condition. In this group there are two forms:

(*a*) The diffuse or typical form, as it occurs in the liver, spleen, kidneys, and so on. Associated diffuse involvement of the bone marrow has been described by Gerber.[8]

(*b*) The localized or atypical form, in which a tumor-like amyloid deposit is present, as for instance in the larynx and the base of the tongue (Kramer and Som [9] and others). In some cases amyloidosis has been observed in the muscles, trachea and lung. These tumors may also be multiple and may be combined with the diffuse form.

2. Secondary or symptomatic amyloidosis, in which a known preexisting cause is present, such as tuberculosis, neoplasms or chronic suppurative processes. In this group too there are two forms which correspond to the two forms of the idiopathic group:

(*a*) Diffuse involvement affecting typically the liver, kidneys, spleen and adrenals, or atypically in sites that are usually spared, as the viscera, muscles and bone marrow.

(*b*) Localized involvement, which may occur within neoplasms or chronic inflammatory areas or in the form of tumor-like amyloid deposits, especially in the upper air passages.

Combinations of these types are frequently present.

Cases of local amyloidosis at first regarded as idiopathic in origin have often shown on closer study an underlying myeloma, which can be easily overlooked in the presence of extensive amyloid deposits within the tumor tissue itself. The diagnosis is especially apt to be missed or even rendered impossible in those cases of isolated amyloid tumors occurring in organs such as the viscera or muscles, with the causative pathologic condition, the myeloma, involving the bone marrow only. In these cases associated clinical and roentgen evidence of myeloma should be looked for and, even though not found, a biopsy of a rib is advisable. Thus, the number of cases of amyloidosis that are regarded as idiopathic would be minimized.

There also are cases in which local amyloidosis may occur with Bence-Jones proteinuria but without evidence of myeloma in histologic sections or on roentgen examination, as in the case of Michelson and Lynch.[10] This type of case must still be included in the idiopathic group.

In multiple myelomas the deposition of amyloid may show the tendency toward the formation of isolated nodules or of solid masses, as illustrated by the case of Helly,[11] in which a large pelvic tumor proved to be amyloid. In addition to the location within the myelomatous tissue, amyloid may also be present in the bone marrow, muscles and joints. The muscles were particularly involved in the case described by Paige,[12] with masses of amyloid up to 15 by 10 by 6 cm.

The following case is the twelfth one reported illustrating the formation of amyloid tumors in association with multiple myelomas:

REPORT OF CASE

History.—E. S., a white woman, aged 39, married, entered the medical service of Dr. Tice in April 1935 complaining of marked weakness, stiffness in the joints with difficulty in moving about, inconstant pains in the sternum, chest, hips and spine, vomiting, and a "lump" in the sternum. She was in good health until November 1934, when she first noticed the dull

From the Department of Surgical Pathology (Dr. R. H. Jaffé, director), and from the Medical Service of Dr. Frederick Tice, Cook County Hospital.

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2. Magnus-Levy, Adolf: Euglobulinemia and Amyloidosis in Multiple Myeloma: Clinical and Pathologic Aspects, Ztschr. f. klin. Med. **126**: 62-111, 1933.
3. Chester, W. Multiple Myeloma and Hyperproteinemia, Ztschr. f. klin. Med. **104**: 466-477, 1923.
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5. Rosenheim, M. L., and Wright, G. P.: Multiple Myelomatosis with Generalized Amyloid-like Deposits and Unusual Renal Changes, J. Path. & Bact. **37**: 332-334 (Sept.) 1933.
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7. Geschickter, C. F., and Copeland, N. N.: Multiple Myeloma, Arch. Surg. **16**: 807 (April) 1928.
8. Gerber, F. E.: Amyloidosis of the Bone Marrow, Arch. Path. **17**: 620-630 (May) 1934.
9. Kramer, Rudolph, and Som, M. L.: Local Tumor-Like Deposits of Amyloid in the Larynx, Arch. Otolaryng. **21**: 324-334 (March) 1935.
10. Michelson, H. E., and Lynch, F. W.: Systemized Amyloidosis of Skin and Muscles, Arch. Dermat. & Syph. **29**: 805-820 (June) 1934.
11. Helly, K.: Handbook of Special Pathologic Anatomy, Henke-Lubarsch **2**: 1063, 1927.
12. Paige, B. H.: A Case of Myeloma: Unusual Amyloid Deposition, Am. J. Path. **7**: 691-699 (Nov.) 1931.

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pains as stated, which troubled her especially at night. A peculiar weakness developed four months prior to admission, accompanied by a progressive stiffness in her joints causing her to become bedridden. The swelling in the upper part of the sternum was first noticed at this time also and after reaching its present size did not seem to grow much and was not tender. Vomiting was first noticed in January 1935, when it lasted for one month and was attributed to a thick slimy post-

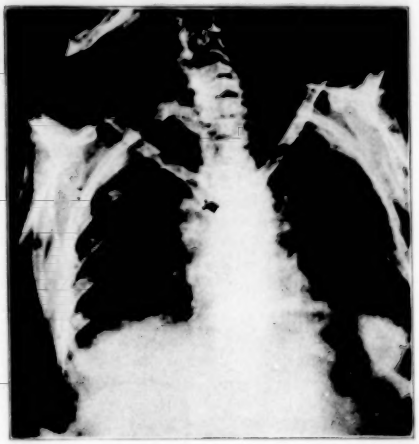

Fig. 2.—Destruction of all the ribs on both sides, complicated by many fractures. Some of the areas simulate an osteolytic neoplasm.

nasal drip. About one month prior to admission the vomiting recurred and was associated with the nasal drip. She had vomited at least once daily and often seven or eight times, the vomitus consisting of food eaten or of stringy mucus. In spite of this, her appetite was good and there had been no noticeable loss of weight.

The past history was essentially negative except for a premature menopause in 1931. The patient had been married six years but had never been pregnant.

Examination.—On admission the patient seemed to be fairly well nourished and except for some pallor did not seem to be ill. The blood pressure was 148 systolic and 100 diastolic. The skin was soft and appeared waxy, but there was no edema. Examination of the nasopharynx showed no apparent cause for a postnasal drip, and no discharge was seen. Over the manubrium there was a moderately firm, nontender swelling about 5 cm. in diameter and 2 cm. in height, fixed to the underlying tissues. Small nodules, which were slightly tender, were felt in the ribs at the axillae. The examination of the lungs and heart gave negative results. The abdomen showed a smooth enlargement of the liver, which extended 8 cm. below the costal margin. The spleen was not palpable. The extremities could be moved freely without pain and the reflexes were normal. Fundoscopic examination was negative.

Course.—The patient's condition remained about the same, her chief difficulty being persistent vomiting, which did not respond to any therapy, including administration of large amounts of sodium chloride. Edema was at no time present. Weakness increased somewhat accompanied by lassitude, and after a stay of ten weeks in the hospital she insisted on going home. She left June 29, 1935, at which time her general condition was approximately the same. Her blood pressure on discharge was 60 systolic and 40 diastolic. Death occurred several days after she left the hospital.

Permission for a postmortem examination was not obtained, but biopsies of the sternal mass and of a rib had been taken before the patient left the hospital.

Laboratory Examination.—The blood Kahn reaction was negative. The icterus index was normal. The blood urea nitrogen, June 14, was 171 mg. per hundred cubic centimeters of blood, and on June 20 was 151.75 mg. At this time the nonprotein nitrogen was 285 mg. and creatinine 12 mg. Cholesterol was 357 mg. and the blood serum had a peculiar milky appearance. The total protein, May 6, was 5.55 per cent. June 20 the serum albumin was 2.61 per cent and globulin 1.12 per cent, with a blood calcium of 7.45 mg. and phosphorus of 4.76 mg. per hundred cubic centimeters of blood. The blood indican was negative but tests for the blood phenols were moderately positive.

A congo red test as described by Shapiro [13] was done May 14 and showed a strongly positive reaction for amyloid, since 90 per cent of the dye was removed from the blood stream in one hour. The urine remained colorless.

The blood examination April 5 showed hemoglobin 80 per cent, red blood cells 4,200,000, white blood cells 3,600. The differential count showed no abnormal forms: June 15 the hemoglobin had dropped to 60 per cent, red blood cells 3,100,000, white blood cells 4,000, and the differential count remained the same. Abnormal rouleau formation in wet and dried smears was not noted.

The urine showed many interesting features. It was usually straw colored with a peculiar opalescent appearance. The specific gravity ranged between 1.008 and 1.014. Albumin was constantly present in large quantities, but in the form of a proteose that could not be identified. It appeared at about 50 degrees but was not dissolved on boiling. Bence-Jones protein could not be found on numerous examinations by different chemists. Many white cells and granular casts were constantly

Fig. 3.—Small discrete areas of destruction in both iliac bones and in the lower ribs.

present, but no lipoid bodies. Phenolsulfonphthalein excretion by cystoscopy showed appearance of the dye in about twenty-six minutes from each ureter but only in small amounts. Stool and gastric analysis were essentially negative.

Roentgen Examination (by Dr. C. H. Warfield).—There were many well defined discrete areas of destruction throughout both tables of the skull measuring from 2 to 7 mm. in diameter (fig. 1).

13. Shapiro, P. F.: Lipoid Nephrosis, Arch. Int. Med. 46: 137-160 (July) 1930.

There were areas of osteolytic destruction in all the ribs, which were irregular in shape, broke through the cortex into the soft tissues, and were complicated by many fractures. Some of these areas were as large as 3 cm. in length and as wide as the rib (fig. 2). There was no gross deformity of the thoracic cage. The dome of the left diaphragm was high, the heart was not enlarged, and no widening of the mediastinal shadows was observed.

The inner end of both clavicles was completely destroyed, though the cortex had been preserved. The entire sternum was decalcified. The manubrium showed osteolytic destruction, due to what appeared to be a tumor extending posteriorly (fig. 4).

Both humeri and femurs showed similar small discrete areas of destruction as seen in the skull (figs. 2 and 5).

The tibia and ulna on both sides showed no destruction.

Both iliac bones showed small discrete areas of destruction similar to that seen in the skull (fig. 3).

The lower dorsal and lumbar spines showed marked decalcification and moderate osteo-arthritis. There was a marked narrowing of the bodies of the first and second lumbar vertebrae.

The pyelogram on the right side showed a small pelvis, elongation of the major calices and normal cupping and papillae. The left side was similar. There was a bilateral increase of the pulmonary hilus markings and thickening of the interlobar pleura of the left side.

No joint changes were noted.

Examination of the gastro-intestinal tract was negative.

SUMMARY

The roentgen examination of the skull and both iliac bones revealed conditions quite typical of multiple myeloma. The changes in the ribs and sternum suggested a metastatic osteolytic neoplasm.

A biopsy taken from the tumor mass over the manubrium sterni revealed microscopically fine and coarse wavy bands and masses of a structureless, homogeneous material that stained diffusely with eosin. Scattered about were nests of small round cells and single foreign body giant cells, which were found attached to the homogeneous masses. Occasionally the homogeneous masses were surrounded by a loose fibrillar connective tissue. No tumor tissue could be identified.

Fig. 4.—Amyloid tumor in manubrium sterni and areas of decalcification through the sternum due to the osteolytic destruction.

Congo red stained the eosinophilic material bright red. Fine deposits of a similar material were seen in the walls of the small arteries. The histologic diagnosis was tumor-like amyloidosis of the bone marrow.

A biopsy of a rib was subsequently taken in order to determine the cause of the amyloidosis. The medulla of the rib showed solid nests of cells, chiefly lymphocytes, and also round and oval cells with an ample cytoplasm and eccentrically placed nuclei, resembling plasma cells (fig. 7). Occasionally there appeared to be transitional stages between the two cell types. Scattered about were small deposits of eosinophilic staining material. By special stains (congo red or gentian violet) this material was shown to be amyloid. The histologic diagnosis was lymphocytic myeloma with amyloidosis.

Fig. 5.—Area of destruction in the upper end of the humerus simulating a neoplastic lesion.

PATHOGENESIS

The origin of amyloid in multiple myeloma is still a question. Magnus-Levy [2] maintains that the most logical source is the bone marrow, which is responsible also for the abnormal euglobulin formation and Bence-Jones protein.

It is only a presumption that the destruction of the bone marrow produces the excessive amounts of proteins that are found in the blood stream in cases of multiple myeloma and in turn lead to stasis and the subsequent formation of amyloid.

However, Jaffé [14] has shown experimentally that the formation of amyloid may be due to an acquired hypersensitivity to abnormal protein substances with the probable origin of the amyloid from collagenous tissue. The latter view also would furnish a more adequate approach to the etiology of the idiopathic amyloidosis.

COMMENT

A study of the literature indicates that the bone marrow is a frequent site of amyloidosis in cases of multiple myelomas. When present, the amyloid presents itself as isolated infiltrations in the wall of the vessels, as massive accumulations in the form of tumors, and as isolated deposits within the preexisting myelomas. That the bone marrow may be diffusely infiltrated with amyloid unassociated with a preexisting blastoma has been shown in the cases of Gerber [5] and others. In a series of nine cases of multiple myelomas examined by Jaffé,[15] no amyloidosis of the bone marrow was found.

Clinically, our case presented practically all the features typical of multiple myelomas, modified to some degree by the presence of the complicating amyloidosis. Vague aches and pains in the joints, spine and chest could be attributed to amyloid infiltrations of the joints and joint spaces, as described by Magnus-Levy. However, these symptoms are often present in the absence of amyloidosis and without roentgen evidence of joint involvement. Symptoms of renal insufficiency, low

14. Jaffé, R. H.: Amyloidosis Produced by Injections of Proteins, Arch. Path. & Lab. Med. 1: 25-36 (Jan.) 1926.
15. Jaffé, R. H.: Personal communication to the author.

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blood pressure and large amounts of protein in the urine are of common occurrence in both multiple myelomas and amyloid nephrosis. Roentgen evidence, as in this case, is usually most marked in the skull with numerous typical, punched out areas of osteolysis. In other bones there may be a resemblance to a metastatic neoplasm (figs. 2 and 5).

In most cases there is an increase in the blood proteins, identified by Magnus-Levy [2] as euglobulin, which may rise to 8 per cent. The renal manifestations of our case can be attributed, at least in part, to an amyloid nephrosis with a fall in the blood proteins to about half of the normal, due to the large amount of protein lost with the urine. Perla and Hutner [16] consider the myeloma kidney a chronic nephrosis with secondary contraction, but Bell [17] believes that obstruction of the tubules by casts of Bence-Jones proteins causes an atrophy and that there is no true nephrosis present.

The typical Bence-Jones protein could not be identified in our case. Instead, an atypical proteose was present constantly in the urine in large quantities. It was very similar to the proteose described in the case of Rosenheim and Wright,[3] and its formation is probably due to the same derangement of protein metabolism

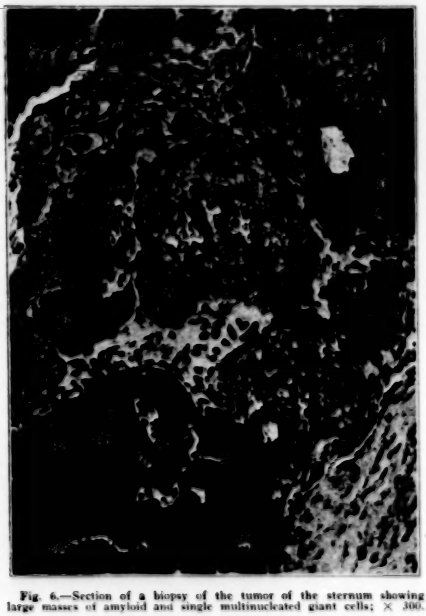

Fig. 6.—Section of a biopsy of the tumor of the sternum showing large masses of amyloid and single multinucleated giant cells; × 300.

that produces the Bence-Jones protein. The congo red test in our case furnished clinically a very valuable aid to the diagnosis of a diffuse amyloidosis, most of the dye having been removed from the blood stream in a short time.

16. Perla, David, and Hutner, Lawrence: Nephrosis in Multiple Myeloma, Am. J. Path. **6**: 285-298 (May) 1930.
17. Bell, E. T.: Renal Lesions Associated with Multiple Myeloma, Am. J. Path. **9**: 393-419 (July) 1933.

Interpretation of the roentgen appearance of the bones may become difficult when the myeloma is heavily infiltrated with amyloid, as demonstrated in the roentgenogram of the ribs, and may even take on the appearance of a metastatic osteolytic neoplasm. Biopsies should always be done in such questionable cases to facilitate an accurate diagnosis.

Fig. 7.—Section of a biopsy of a rib, showing lymphocytic character of the myeloma and beginning amyloidosis in the bone marrow; × 600.

CONCLUSION

A patient with multiple myelomas and a local tumor-like deposition of amyloid presented clinically the picture of multiple myelomas with a nephrotic syndrome. Death occurred from renal insufficiency.

In cases appearing as primary or so-called idiopathic amyloidosis, either local or diffuse, repeated biopsies are advisable to exclude the possibility of an underlying myeloma.

In all cases of multiple myelomas the congo red test should be performed in order to detect an eventually associated amyloidosis.

In multiple myelomas, instead of the typical Bence-Jones protein, atypical proteins may be found in the urine possessing the same diagnostic significance as the former.

A Great Relief.—It is a great relief to come from the world of public affairs, where no one dares to admit that he does not know, where no one ever admits that he has made a mistake, where no one ever admits that he is puzzled, into a world where it is respectable and honorable and safe to put aside the pretension of infallibility and of omniscience.—Lippmann, Walter: Anniversary Discourse Before the New York Academy of Medicine, *Bull. New York Acad. Med.* **11**:673 (Dec.) 1935.

DIAPHRAGMATIC FLUTTER WITH SYMPTOMS OF ANGINA PECTORIS

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Diaphragmatic "tic" is sufficiently rare to justify one in reporting an authenticated example of this peculiarly interesting malady.

The case to be reported is unique in that the movement of the minor contractions was recorded graphically and the rate was found to be 300 or more per minute, and a study of the diaphragm under the fluoroscope showed that the contractions were bilateral, spread over the entire diaphragm and apparently rhythmic in time and amplitude. The term "diaphragmatic flutter" is most appropriate and descriptive of the observed phenomenon.

There was associated with the disturbance of diaphragmatic function severe pain in the left pectoral muscle and in the left arm and hand over an area

Fig. 1.—Area of pain distribution and hyperesthesia.

corresponding to the eighth cervical and the first, second and third dorsal segments of the cord (fig. 1). Over the area of referred pain there was marked hyperesthesia, which persisted even after relief from pain followed cessation of diaphragmatic flutter.

REPORT OF CASE

J. C., a white man, age 57, a deep sea diver, admitted Feb. 5, 1935, and discharged February 19, complained of a severe pain in the left side of the chest radiating down the left arm to the hand and accompanied by extreme anxiety and respiratory distress.

The patient was found ill on the sidewalk of the city. He stated that eighteen hours previously he had come to the surface from a diving bell without adequate decompression having been done. He felt no inconvenience from this until a few hours before the onset of the present illness, at which time he was seized with agonizing pain in the left pectoral area accompanied by a cramplike pain in the left arm and the ring and little fingers of the left hand. When seen in the admission ward he was begging to be put in an oxygen tent because he was convinced that he was suffering from caisson disease. He stated that he had had similar attacks in the past and that he was always promptly relieved when he was placed in an oxygen tent.

The patient appeared to be in great distress. The face was drawn and pale, and the body was fixed in a semirecumbent position with a tendency to lean toward the left side. He kept his hand constantly over the outer margin of the left pectoral muscle and was massaging at times the inside of the left arm and the ring and little fingers of the left hand. Cyanosis was notably absent. The first impression was that the patient was suffering from a serious cardiac malady and the examination was directed primarily to the heart and pulmonary system.

The heart was apparently normal in size and shape, rhythmic in action, with a pulse rate of 88. The sounds were distant but there was heard over the precordial area a to and fro shuffle, which was interpreted as a pericardial friction rub. Blood pressure was 115 systolic, 45 diastolic. An immediate blood count showed a leukocyte count of 10,000 with 77 per cent polymorphonuclear leukocytes. An electrocardiogram taken while the patient was in the emergency ward showed changes strongly suggestive of coronary disease (fig. 2). The mouth temperature was 101 F. There was made a tentative diagnosis of coronary occlusion with infarction of the heart muscle.

The patient was admitted to the hospital ward at 3 p. m. From this period until 9 o'clock the next morning he received three-fourths grain (0.05 Gm.) of morphine, hypodermically, with only partial relief. When seen the next morning it was apparent that he was having pain in the same area and that there was marked hyperesthesia confined to the area of referred pain. At this time he was examined by a group of physicians, who noted the following interesting facts: There was a striking pallor of the skin, which was sweaty and cold. The respiratory cycles were jerky and were occurring at a rate of 12 to 15 per minute. There had been no change in the pulse rate but the blood pressure was 100 systolic, 65 diastolic. Over the precordial area the adventitious sound previously noted was plainly audible, but it became apparent that the sound was not synchronized with the heart beat but was occurring at a rate of 250 or more per minute and was accompanied by, and synchronized with, a tremor in the epigastric area. It was also observed that the adventitious sound was plainly audible over the entire lower third of the chest both anteriorly and posteriorly and was best heard over the lower lobes near the lung margins.

Under the fluoroscope the diaphragm was seen to be moving on inspiration and expiration and there were superadded minor contractions, which were occurring at a rate of 250 or more per minute with an amplitude of about 1 cm. The minor contractions spread over the entire surface of the diaphragm on both sides, were apparently rhythmic, and could be best described as being a flutter of the diaphragm. With the assistance of the department of physiology a graph of the diaphragmatic flutter was recorded (fig. 3).

It seemed reasonable to conclude that there was some connection between the clinical symptoms and the disturbed function of the diaphragm, and it was decided that blocking the phrenic nerve was a reasonable therapeutic procedure. This was done with procaine hydrochloride infiltration anesthesia of the left phrenic nerve, which immediately relieved the chest pain, and the tremor previously noted in the epigastric area disappeared. An examination of the chest showed that the adventitious sound was no longer present and the fluoroscope showed that the left side of the diaphragm was not functioning; the right side of the diaphragm was moving normally, and there were no abnormal contractions on either side.

The patient remained comfortable for a period of seven hours, when there was a recurrence of the pain, the epigastric tremor and the adventitious auscultatory phenomenon. He was again viewed under the fluoroscope and it was noted that there was a recurrence of the diaphragmatic flutter. As a matter of experiment the right phrenic nerve was infiltrated and the pain was immediately relieved. A restudy of the diaphragm under the fluoroscope showed that the right side of the diaphragm was not functioning but that the left was functioning normally, and there was no tremor on either side. It was again noted that there was complete absence of the to and fro shuffle

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sound that had been heard constantly during numerous examinations prior to the phrenic nerve block. It appeared, therefore, that both the pain and the adventitious sound were in some way induced by the abnormal functioning of the diaphragm.

A very complete study was then instituted in an effort to determine the cause of the diaphragmatic disturbance. Roentgen studies were made of the sinuses, mediastinum, the entire gastrointestinal tract, the heart and the lungs. The sinuses showed slight haziness, and there was thickening of the descending branches of the bronchi with slight haziness at the bases of the lungs, which was interpreted as being indicative of a mild degree of bronchiectasis. The heart and aorta were entirely normal. While in the hospital the patient had a cough and expectorated from 1 to 2 ounces (30 to 60 cc.) of mucopurulent sputum, and the temperature varied from 101 F. to normal.

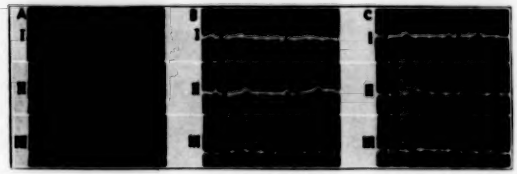

Fig. 2.—The changes in the T wave are the significant alterations in the electrocardiogram. *A*, severe paroxysm of pain; diaphragmatic rate 300+. *B*, no pain; normal diaphragmatic function. *C*, onset of precordial pain with recurrence of diaphragmatic "flutter."

It was concluded that the fever and expectoration were indicative of a subacute pansinusitis complicated by bronchiectasis with infection.

The patient left the hospital against medical advice and with only slight modification of his clinical condition, except for those periods of marked improvement following the procaine infiltration.

COMMENT

The case here reported presents many interesting problems for consideration. The patient, after leaving the hospital, was traced through the Associated Press to other hospitals in the Eastern states. Through personal communication it has been possible to gather useful data concerning the further course of this patient. In one hospital where he was, the conclusion reached was that the patient was a morphine addict who voluntarily induced the disturbance of diaphragmatic function in an effort to secure the drug. This impression was held by one other observer who studied the patient.

It does not seem reasonable to conclude that this was the true situation. Our observations, which considered this aspect of the case seriously, convinced us that the man was seriously ill and that he sought morphine only because he was having severe discomfort. It is conceivable that he may have become habituated to morphine if it is concluded that the attacks of diaphragmatic disturbance continued to recur.

Cases of a somewhat similar character have been studied by observers both in America and in continental Europe. Gamble, Pepper and Muller [1] have reported an interesting case of a man, aged 38, who developed very rapid respiration during convalescence from an attack of encephalitis. The only subjective complaint was slight pain in the left arm and shoulder extending down to the elbow, with soreness of the right arm. The respiratory movements were recorded with a pneumograph and were from 60 to 90 per minute. Under the fluoroscope the diaphragm was seen moving on inspiration and expiration, but there were superadded minor contractions to the larger excursions of the diaphragm. When the breathing was voluntarily controlled, the only motion of the diaphragm was the tic. This patient was permanently relieved by exposing the phrenic nerve on each side and freezing the nerve with an ethyl chloride spray. The respiratory rate fell immediately from 96 per minute to 20 per minute and remained so thereafter.

Simonin and Chavigny [2] have reported two cases observed over a long period, which they described as chorea of the diaphragm. In the first case the diaphragmatic disturbance apparently recurred over a period of more than two years. The rate of movement of the diaphragmatic jerkings reached 60 per minute. The patient was manifestly a psychoneurotic individual, and it was thought that the disturbance was hysterical in nature. In the second case the rate of the diaphragmatic tic was from 65 to 70 per minute and this was confirmed by fluoroscopic examination. It was bilateral and involved the entire diaphragm and is referred to as small rapid beats superimposed on the normal diaphragmatic contractions. The patient was followed for a period of twenty-seven months with little or no tendency to improvement. The final conclusion was that the disturbance was functional but probably in some way related to an attack of pleurisy that had occurred a few years previously.

Kulenkamp [3] reports that a patient, aged 27, during convalescence from what was thought to be encephalitis, had a disturbance of respiration which was found to be associated with a tremor or tic of the diaphragm. There were no subjective symptoms related to the cardiorespiratory apparatus. After a thorough study of the case he concluded that the diaphragmatic disturbance was in some way related to a central nervous lesion and that it was similar in its behavior to the shaking movements noted in postencephalitis paralysis agitans. He felt that the diaphragmatic tremor was of a similar nature and probably was related to a cen-

Fig. 3.—Kymographic tracing during a severe paroxysm of pain. *A*, diaphragmatic "flutter," rate 300+. *B*, tracing magnified photographically.

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2. Simonin and Chavigny, Chorea of the Diaphragm, Paris méd. **6**: 191 (Sept. 2) 1916.

3. Kulenkamp, G.: Tremor of Diaphragm Following Influenza, Deutsche Ztschr. f. Nervenh. **94**: 312-314, 1926.

tral nervous lesion accompanying encephalitis. No definite statement is made, but the impression is that the case was followed for a prolonged period without any notable variation in the clinical symptoms.

From a clinical standpoint, one of the most interesting subjective disturbances occurring with diaphragmatic tic and flutter is the referred pain, which in many instances closely simulates the pain of angina pectoris. Roemheld [4] has described a clinical syndrome which he referred to as the "gastrocardiac syndrome," in which he attempts to describe a definite type of angina pectoris which he feels is related to disturbance of function in the stomach and colon.

Lurjé and Stern [5] have recently described a similar clinical entity under the head of "cardiodiaphragmatic syndrome." They believe that there exists a group of patients who have pain in the left thorax which is referred down the arm and which is associated with many of the cardinal symptoms of angina pectoris and is due entirely to malfunction of the diaphragm. After various manipulative measures, such as distending the stomach and colon with gas, they reach the conclusion that this syndrome is directly related to a hypotonus of the diaphragm which allows this structure to be pushed upward by a subdiaphragmatic collection of gas, which in turn disturbs cardiac function sufficiently to induce a group of symptoms similar in every respect to angina pectoris.

Winkler [6] in a complete discussion of cardiac pain and its relation to diaphragmatic angina has reviewed the whole subject at considerable length. In this detailed review he is convinced that there exists a syndrome quite similar to that of angina pectoris, associated with coronary disease, which is in some way related to the diaphragm. He concludes that, in the general consideration of the subject of angina pectoris, one must list as a special disease picture the diaphragmatic angina which has heart pain, radiating pains and states of anxiety quite similar to that of Heberden's angina, and differing only in that there is rarely that acute sense of impending death. He feels that it is based on a group of reflexes which proceed from the diaphragm, which are partly sensory and partly motor in nature. He goes even further and recommends that the connection of the phrenic nerve to the sympathetic chains be interrupted surgically in an effort to cure the more intractable cases.

Similar conclusions have been reached by Hofbauer [7] in which he describes attacks of angina pectoris, which he feels were definitely associated with and dependent on pathologic lesions of the diaphragm as well as disturbance of its physiologic function.

My experience with this patient convinces me that there is a syndrome which closely simulates angina pectoris and is directly related to a functional disturbance of the diaphragm. Just how much emphasis should be placed on the syndrome is difficult to decide. It is conceivable that disturbances of the diaphragm of a similar type to those observed in this patient may be more frequent than has been realized, for the clinical symptoms and physical phenomena are most elusive, and, judging from my experience with the case under discussion, it would be quite explicable for one to class the patient as a malingerer or conclude that a coronary accident had occurred, while the true nature of the illness goes unrecognized.

The diagnosis may be further confused by temporary alterations in the electrocardiogram made during the peak of a paroxysm. Just how these changes are produced is difficult to conceive, unless there occur in the myocardium nutritional alterations. The disappearance of the changes with cessation of diaphragmatic flutter suggests a direct relationship to the disturbance of diaphragmatic function.

My experience with this patient and others who suffered from lesser degrees of what was manifestly a similar clinical condition gives evidence that the most important differential diagnostic point between Heberden's angina and the "cardiodiaphragmatic syndrome" is that the latter condition is characterized by a notable absence of substernal pain and constriction, and there is a tendency on the part of the patient to be restless, which is in bold contrast to the fixity of one undergoing an episode of angina pectoris.

The case here presented emphasizes the conclusions of other observers: that there exists a clinical condition which is justifiably described as cardiodiaphragmatic angina.

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5. Lurjé, S. J., and Stern, B. M.: Connection Between Cardiodiaphragmatic Syndrome and Collection of Air in Left Hypochondrium, Ztschr. f. klin. Med. **115**: 552-569, 1931.

6. Winkler, F.: Cardiac Pain and Its Relation to Diaphragmatic Angina, Wien. med. Wchnschr. **83**: 447-450 (April 15) 1933.

7. Hofbauer, L.: Angina Pectoris Diaphragmatica, München. med. Wchnschr. **80**: 411-415 (March 17) 1933.

ESOPHAGITIS

A CLINICAL STUDY

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The esophagus usually is considered immune to the usual diseases that attack other organs of the body. Much has been written concerning carcinoma and stricture of the esophagus, and cardiospasm, but little has been written about the most common disease of the esophagus—esophagitis.

In a recent study, we [1] found the incidence of esophagitis to be 7.02 per cent in 3,032 necropsies performed. Definite symptoms occurred in 10.3 per cent of the 213 cases in which a pathologic diagnosis of esophagitis was made. Although in thirty-two cases (10.3 per cent) there were definite symptoms that suggested esophagitis, a clinical diagnosis was made in only one case. All the information obtained concerning the symptoms of esophagitis was volunteered by the patients. It seems reasonable to suppose that, if the patients had been questioned as a routine with regard to the symptoms of esophagitis, the percentage of patients who had symptoms which suggested esophagitis would have been increased, and the clinical diagnosis would have been recorded more frequently than it was.

OCCURRENCE

The anatomic structure of the esophagus makes it vulnerable to the organisms of the oral cavity, the regurgitated gastric contents, and infection through the blood stream and the lymphatic structures from the abdominal viscera. Esophagitis is most frequently the accompaniment of diseases in which there is frequent vomiting and in which passage of a stomach tube is

From the Division of Medicine, the Mayo Clinic.

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employed in treatment. Tileston [2] and Sheehan [3] observed that esophagitis was favored by stenosis of the pylorus or duodenum, which led to frequent vomiting. We recently have shown that the incidence of gastric intubation and vomiting closely parallel the increased incidence of esophagitis.

Moutier [4] reported several cases of postoperative esophagitis, and we found that in 159 (74.6 per cent) of 213 cases of esophagitis the disease had followed some form of operative procedure.

Jackson [5] observed evidence of chronic foci of infection in 90 per cent of cases of "peptic ulcer" of the esophagus, and Mosher [6] noticed the frequent association of this condition with infection of the gallbladder. Moersch and Camp [7] suggested that intra-abdominal infections, such as cholecystitis, duodenal ulcer and appendicitis, might be carried by lymphatic vessels to the esophagus and give rise to localized esophageal infection.

The work of Cushing,[8] and that of Masten and Bunts,[9] stress the frequency and danger of esophageal inflammation in tumors of the brain and in other conditions which involve the central nervous system.

The relationship between esophagitis and superficial burns, diabetes mellitus, arteriosclerosis and many other conditions had been recorded in the literature.

SYMPTOMS

The most common symptom of esophagitis usually is described by the patient as a "burning" in the thorax. This occurred in seventeen (53.2 per cent) of the thirty-two cases in which symptoms were present. This burning pain is most often in the back and lower third of the sternum. The pain, as pointed out by Eusterman, Moersch and Camp,[10] often simulates the pain described in histories of cases of peptic ulcer. In fact, Rivers [11] observed that 45 per cent of his patients with esophageal ulcer gave a history which simulated that of peptic ulcer.

Hematemesis and melena have been reported as symptoms that occur in the course of esophagitis. The former is the most common type of bleeding in this condition. Pringle and Teacher [12] have emphasized the importance and danger of postoperative hematemesis. Anesthetic agents have been accused by some writers, and no doubt these agents do often excite vomiting, but just how they could produce bleeding we cannot understand. In our series of 213 cases, hematemesis occurred in fifteen (40.8 per cent) of the thirty-two cases in which there were symptoms. It was the second most frequent symptom. The amount of blood that was vomited varied from a few cubic centimeters to 200 cc. A few of the patients vomited blood on several occasions. Grossly, all the lesions presented acute ulcerations and involved the lower third of the esophagus. In one case the entire esophagus was involved. In none of the cases in which hematemesis was present was the esophagus suspected clinically as being the source of the bleeding. At necropsy, no other lesion which could account for the bleeding was found in the upper part of the alimentary tract, except the ulcerated esophagus.

Dysphagia was present in nine cases (28.1 per cent); the probable cause of this symptom was spasm of the esophagus, which resulted from the inflammatory lesion. Dysphagia frequently was accompanied by substernal pain. In a few cases the dysphagia was so severe that it was necessary to feed the patient with a tube.

As Barclay [13] pointed out, the patient with esophageal ulcer may go through all the stages of hypertrophy, pain, obstruction and starvation and often may remain comfortable in a stage of semistarvation.

In twenty-three (71.9 per cent) of these cases, esophagitis followed operation. The symptoms usually appeared from twenty-four to forty-eight hours after operation and continued for from three to ten days. In the remaining nine cases, in which operation was not performed, the symptoms usually began several days before death. In a few of the cases in which gastric intubation was employed, the symptoms appeared a short time following the procedure.

DIAGNOSIS

Substernal burning and pain, hematemesis and dysphagia are the most common symptoms. Whenever any of these symptoms occur, the diagnosis of esophagitis should be considered. This is especially true if the symptoms appear following vomiting, gastric intubation or infection.

Jackson, in discussing Winkelstein's [14] report, said that esophagoscopy was indicated in every case in which unyielding gastric symptoms were present. Levine [15] also found this method of use in the diagnosis of esophagitis.

Barclay and others have stressed the importance of roentgen rays as a diagnostic procedure. Usually there is spasm of the lower third of the esophagus without dilatation. Administration of belladonna, according to Barclay, relieved the spasm in some cases, whereas in other cases it had no effect. The severity of the spasm does not appear to depend on the degree of inflammation. Otell and Coe [16] described spasm as the chief roentgenographic characteristic of ulcer of the esophagus, but according to these authors "the roentgen appearance in acute esophagitis shows no variation from the normal."

TREATMENT

The simplest treatment of esophagitis is prevention. Less trauma in the passage of stomach tubes certainly would decrease the incidence of the disease. Vomiting should be controlled as much as possible. If pain becomes severe, dissolving ethyl aminobenzoate lozenges in the mouth and swallowing the saliva may be helpful. An icebag to the sternum and neck often will

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14. Winkelstein, Asher: Peptic Esophagitis: A New Clinical Entity, J. A. M. A. **104**: 906-909 (March 16) 1935.
15. Levine, S. A.: A Case of Ulcer of the Esophagus with Extraordinary Medical Experiences, M. Clin. North America **13**: 189-195 (July) 1929.
16. Otell, L. S., and Coe, F. O.: Dysphagia, Roentgenologically Considered, Am. J. Digest. Dis. & Nutrition **2**: 117-126 (April) 1935.

give relief. Bastedo, Friedenwald and Soper [17] give many helpful suggestions in their recent symposium. Soper pointed out the value of a bland, smooth diet and the usual difficulties encountered when alkalis are administered. Olive oil and cool milk have been suggested as helpful therapeutic procedures. We advocate the administration of tincture of belladonna, in doses of 20 drops (1.2 cc.) every three or four hours for relief of spasm, a soft diet, and sedatives for pain. Morphine sulfate in small doses is administered when the pain is severe. Feeding with a tube and measures to prevent vomiting should be employed.

When the condition results in the formation of an ulcer, Barclay found that the passage of a bougie may so stretch the base of the ulcer that healing and complete relief of all symptoms may follow.

CONCLUSIONS

1. Esophagitis is the most common condition affecting the esophagus.

2. It should be suspected when substernal pain, dysphagia or hematemesis is present. Hematemesis which occurs at any time, but especially that which occurs after operations or any acute illness, should make one suspect the esophagus as its source.

3. It is advisable to perform esophagoscopy in every case in which there are unyielding gastric symptoms.

THE PREVALENCE OF VITAMIN A DEFICIENCY AMONG IOWA CHILDREN

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In 1934 we [1] described a photometer test for dark adaptation which we believed useful in detecting vitamin A deficiency. Subjects with impaired ability to adapt to the dark were found to attain normal standards of dark adaptation after a period of vitamin A ingestion. The study that was reported seemed to establish the validity of the dark adaptation test as a test of vitamin A deficiency. With the photometer test being used as the criterion, a survey was made among Iowa school children in an endeavor to determine the frequency of vitamin A deficiency. This presentation is for the purpose of recording the results of the survey.

The first phase of the study, i. e., the original testing, was conducted in 1934 from February to April inclusive. The total group examined comprised 404 children from 6 to 15 years of age selected at random from rural, village and urban schools. The village selected was a county seat of approximately 2,000 population. The children of the rural group were from numerous small schools located within a 10 mile radius of the selected village; they were transported to the village for the test. All the village and rural children were examined in the same dark room and under the same standardized conditions. The urban children were in a city of approximately 150,000 population and were attending four different schools. Though the examinations were made in four different places, the conditions of the test were thoroughly standardized in each location. The urban children were classified according to the economic levels of their parents. Many of the families at the lowest economic level were receiving assistance.

The results of the survey are most readily comprehended by examination of table 1. A distinction has been made between those with borderline subnormal and those with definitely subnormal dark adaptation. Considering only those definitely subnormal, it was found that the proportion having poor dark adaptation in the rural group was 26 per cent and in the village group 53 per cent; in the urban group the proportion in the upper economic level was 56 per cent, at the middle level 63 per cent and at the lowest level 79 per cent. Analysis of our data failed to reveal any relationship between vitamin A deficiency and either age or sex.

The results obtained were definite and clean cut and no obvious reason was apparent for doubting them. However, the proportion of subnormal results was so unexpectedly high that it was thought best to continue the study by reexamining some of the children after a period of vitamin A ingestion. An attempt was made to include in this second phase of the study all the rural and village children who had had borderline or definitely subnormal results at the first testing. For a period of several weeks either halibut liver oil or carotene in oil was administered each school day by the teachers. Those who did not show normal dark adaptation by the time school closed were given one of these products to use at home and at the same time we started bringing the children in small groups into the Children's Hospital and retaining them until normal dark adaptation was attained. Of the total group of ninety-nine rural and village children whose tests had shown abnormal results, all except twelve continued under observation. The reasons for these twelve exceptions were illness, removal from the district or lack of cooperation. These twelve children did not receive a second test. Nine other children were observed and tested further but did not continue to the completion of their study. Six of these were dropped from the group because they refused to come to the hospital; the others were discharged from the hospital after a few days because of exigencies in the home. All nine of these children, however, showed definite and unmistakable improvement in dark adaptation before they went from under observation.

TABLE 1.—*Survey of Iowa School Children as Regards Dark Adaptation*

Economic Level	Number Examined	Per Cent Normal	Per Cent Borderline Subnormal	Per Cent Definitely Subnormal
Rural				
Middle to low	100	64	10	26
Village				
All levels	102	37	10	53
Urban				
Upper	70	34	10	56
Middle	70	27	10	63
Low	62	11	10	79

In our former publication the incidence of vitamin A deficiency found in a hospital group was reported at 21 per cent. It was stated that no significance should be attached to the proportion found. The report was concerned primarily with description of the test rather

17. Bastedo, W. A.; Friedenwald, Julius, and Soper, H. W.: Symposium on Management of Esophagitis, Am. J. Digest. Dis. & Nutrition **2**: 379, 1935.

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Read in part before the American Pediatric Society in May 1934.
From the Department of Pediatrics, State University of Iowa College of Medicine.

1. Jeans, P. C. and Zentmire, Zelma: A Clinical Method for Determining Moderate Degrees of Vitamin A Deficiency, J. A. M. A. **102**: 892 (March 24) 1934.

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than the frequency of deficiency. Approximately 50 per cent of the children examined in the first study were orthopedic and pediatric patients who had been hospitalized repeatedly and in some instances at short intervals for treatment of chronic afflictions not affecting their nutrition. In retrospect it appears that the effect of hospital diet and the dietary instructions given for home care offer sufficient explanation for the discrepancy apparent in the incidence figures of the two reports.

TABLE 2.—*Results of Retesting After Administration of Vitamin A*

School	Number Subnormal First Test	After Administration of Vitamin A or Carotene: Not Retested	Number Normal	Number Improved*	Number Unimproved
Rural	36	9	24	3	0
Village	63	3	51	6	3
Totals	99	12	75	9	3†

* Only a brief period of observation permitted.
† After approximately six weeks of treatment.

The data presented in table 2 show that of the seventy-eight children who continued under observation only three failed to attain normal dark adaptation. These three remained in the hospital for from three to six weeks and it was impracticable to keep them longer. Careful ophthalmologic examination failed to reveal any abnormality that would account for the poor dark adaptation. It would be only conjecture to state that a protracted period of vitamin A deficiency may have produced a refractory state and that possibly a longer period of vitamin A ingestion would have brought about improvement. We have noted that the children who required the longest stay in the hospital to attain normal dark adaptation, as well as these three who did not become normal, were those who did not like foods rich in vitamin A or carotene. If these three children are considered to represent exceptions to the rule that the dark adaptation test is a test of vitamin A deficiency, the test is still more than 95 per cent efficient when applied in a large scale survey.

The halibut liver oil and carotene in oil were administered in dosages computed to be approximately equivalent to the vitamin A content of 3 teaspoonfuls of cod liver oil daily. Of the children whose dark adaptation was subnormal, the great majority attained normal adaptation within a period of a month after starting ingestion of vitamin A. At the dosage levels used, no difference was detected between the effectiveness of vitamin A and of carotene.

The second phase of this study gave evidence in addition to that in our former report that the test described is useful in detecting vitamin A deficiency. Also the conclusion seems permissible that the test may be used in large scale surveys with small chance of error, even if expert medical consultation is not employed. It is indicated also that vitamin A deficiency is much more prevalent than usually has been assumed.

Two other studies of the prevalence of vitamin A deficiency among school children have been found in the literature. Widmark and Svensson [2] examined approximately 1,200 children from all economic and social strata of the manufacturing and seaport city of Malmo, Sweden, with a population of 120,000. They used the photometer test of Edmund, which consists of a single test of vision immediately on entering a dark room and without a period of adaptation. Only nine children were thought to have vitamin A deficiency. Frandsen [3] found slight hemeralopia in forty-six of sixty-five apparently healthy school children of Copenhagen; latent hemeralopia was present in seventy of seventy-two children examined as private patients for eye complaints. Improvement or cure was produced by the administration of cod liver oil for several weeks or months. The degree of night blindness was determined by the ability to distinguish letters of varying shades from black to faintest gray on a white background, in a light of constant dimness, after an adaptation period of from five to ten minutes.

2. Widmark, E. M. T., and Svensson, B.: Skandin. Arch. f. Physiol. 54: 127 (July) 1928.

3. Frandsen, H.: Hospitalstid. 77: 42, 1934; cited in Nutrition Abstr. & Rev. 4: 621 (Jan.) 1935.
Translated by Dr. George Halperin.
Read before the first Russian Congress for Blood Transfusion, at Moscow, in February 1935.
1. Skundina, M. G., and Barenboim, S. I.: Transfusion of Cadaver Blood, Novy khir. arkhiv 101, 1932.

SUMMARY

Using a test for ability to adapt to the dark as the means for detecting vitamin A adequacy, we found that 26 per cent of a rural group and 53 per cent of a village group of Iowa children presented evidence of vitamin A deficiency; in an urban group the proportion for the higher economic level was 56 per cent, for a middle level 63 per cent and for a low economic level 79 per cent. Of the seventy-eight village and rural children who were deficient in vitamin A and who continued under observation, all except three developed normal dark adaptation after a period of vitamin A or carotene ingestion.

TRANSFUSION OF CADAVER BLOOD

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The striking results of V. N. Shamov in experiments on dogs and the special conditions of the work in my clinic, frequently requiring immediate blood transfusion, stimulated me to attempt the use of cadaver blood for transfusion in human beings. My first experience was with the case of a young engineer who slashed both of his wrists in a suicidal attempt. He was brought to our hospital pulseless and with slow, jerky respiration. Transfusion with 420 cc. of blood taken from the cadaver of a man, aged 60, who had been killed in an automobile accident just six hours before, promptly revived him.

My assistants Dr. M. G. Skundina and Dr. S. I. Barenboim [1] studied in dogs the oxygen exchange according to Barcroft before bleeding, after partial exsanguination, and after transfusing these animals with blood taken from dogs killed a few hours before. They were able to show that cadaver blood when transfused into animals dying of acute anemia was capable of reviving them and that it immediately raised the oxygen content of the blood and participated actively in the gaseous exchange. They further demonstrated that cadaver blood preserved its living properties in the blood vessels of dogs for from six to eight hours when the cadavers were kept at a temperature of 1 or 2 degrees above zero. Studies in human beings showed

that the hemoglobin of the recipient rose immediately and that the volume percentage of oxygen became materially raised.

A series of forty-nine clinical cases demonstrated the therapeutic effectiveness of the new method. Cadaver blood did not exhibit any toxic effect and its therapeutic results were not different from those obtained with the blood from living donors. There remained, however, the problem of the Wassermann reaction. It was solved when I demonstrated that cadaver blood can be preserved in a refrigerator. I took the chance of transfusing a patient, bleeding to death from a gastric ulcer, with the remains of unused blood kept in the refrigerator for three days. The patient's condition improved to such a degree as to enable me to perform the difficult operation of stomach resection for a deep duodenal ulcer penetrating into the pancreas. Further studies demonstrated that it was possible to keep the blood in a citrate solution for as long as four weeks. This, of course, solved the problem of the Wassermann reaction. It likewise made it possible to check up on the sterility of the preserved blood by cultures. This, together with a careful necropsy performed on each cadaver, protected the recipient to the fullest degree.

We soon learned to select the more suitable cadavers, such as those of persons dying in an attack of angina pectoris, those killed by an electric current or those who hanged themselves. From 2 to 3.5 liters of blood can be easily obtained from a cadaver that is not damaged, and that amount will suffice for five or six average transfusions. Before long we not only had enough blood for our own clinic but we were able to supply it to a number of hospitals and even send it to distant points.

The technic of withdrawing blood is simple. The jugular vein is severed and a glass cannula to which a rubber tube is attached is introduced into each end of the vein. The cadaver is then placed in the Trendelenburg position and the blood is allowed to run into a 500 cc. glass flask. The neck of the bottle is stoppered with cotton and the bottle is placed in a refrigerator, where it may be kept for one month.

My assistants Dr. M. G. Skundina and Dr. A. W. Rusakov demonstrated by carefully following the postmortem injection technic that, after the injection of the cadaver with methylene blue, blood drawn from the jugular vein will not show any trace of the dye. It appeared that blood flowing from the jugular vein drains the systemic veins flowing into the superior and inferior venae cavae and not those from the lesser and the portal circulations. This is important in view of Shamov's observations that blood in the mesenteric veins is the first to become infected after the death of an animal. At room temperature, infection from the bowel will enter these veins after twenty hours. Because of this we decided to put the limit of usability of a cadaver at six hours for the summer and eight for the winter.

The researches of Skundina and Rusakov [2] on some 500 cadavers established interesting facts regarding the coagulation of the cadaver blood. They found that the coagulation of the blood and the further behavior of the coagulum depended on the cause of death in a given case and on the duration of the antemortem agony. Blood of healthy individuals who died suddenly in traffic accidents, in drownings, in a heart attack or from an apoplectic stroke, rapidly coagulated if removed in the first few hours after death. The coagulated blood, however, returned in from one-half to one and one-half hours to the fluid state and would not coagulate again. Warming and shaking the blood accelerated the liquefaction or fibrinolysis, while saturating it with oxygen retarded the fibrinolysis. A number of sensitive biochemical tests failed to demonstrate the splitting up of the albumin molecule. For example, there was no increase in the serum of the residual nitrogen. They have succeeded in demonstrating that fibrinolysis here took place because of the gradual disappearance of the main component—the fibrinogen. A. W. Rusakov observed with the aid of an ultramicroscope the fine fibrin network break up into the tiniest kernels, which would not pass a filter.

Blood of individuals dying slowly showed an abnormally high sugar content, while the blood of those dying after prolonged agony showed normal amounts. The high sugar content did not come from the so-called bound (tissue) sugar, if we assumed that splitting of the albumin molecule took place. Skundina and Rusakov were able to show that the source of sugar was the large hepatic veins, for if they succeeded in operatively removing the liver before killing the experimental animal (rabbit or dog) the rise in the blood sugar did not take place. The increased sugar content, however, is no drawback to transfusion, because even in the massive transfusions it amounts to not more than 2 Gm.

There is a practical as well as a theoretical significance in the phenomenon of fibrinolysis occurring in the blood of individuals who die suddenly. Dr. Skundina called attention to the fact that we have here "a paradoxical phenomenon in that the blood of sick people dying after an agony does not differ in its coagulating properties from the blood of the living, while the blood of individuals dying suddenly possesses the property of first coagulating and later reliquefying." [3] Its behavior in this respect is analogous to that of blood extravasated into the peritoneal or the pleural cavity.

A. A. Bocharov, one of my assistants, recorded an interesting observation. Blood drawn from two accident cases, brought to the institute in a state of shock, underwent fibrinolysis and remained fluid. One of the patients died in spite of the measures resorted to in order to save him, while the other recovered after an operation and a massive blood transfusion. His blood on recovery coagulated normally. A profound shock is a state close to death. It would appear that in a shocked patient fibrinolysis begins while the patient is still alive.

The practical advantages of the phenomenon of fibrinolysis are, first, that one can tell the fitness of the blood by observing its behavior with regard to coagulation even before the necropsy is performed, and, secondly, that this blood can be preserved without the aid of an anticoagulant. Blood preserved without the addition of the citrate solution undergoes hemolysis more rarely and after a longer interval. But what is more important is that while the citrate blood gives about 20 per cent of mild reactions, that without the citrate gives about 5 per cent.

The technic of transfusion consists of warming the blood to body temperature by placing the flask con-

2. Skundina, M. G.; Rusakov, A. W., and others, Transfusion of Cadaver Blood Without Preservatives, Sovet. khir. **7**: 194 (Nos. 2 and 3) 1934. Skundina, M. G.; Ginsberg, R. E., and Rusakov, A. W.: Biochemical Changes in Cadaver Blood, ibid., 1935, No. 6, p. 78.

3. Yudin, S. S.: La transfusion du sang de cadavre à l'homme, monograph, preface by Prof. A. Gosset, Paris, Masson & Cie, 1933.

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taining the cadaver blood in warm water. The blood is then passed through a gauze filter into the vessel from which it is to be transfused. The transfusion can be performed with the aid of a Jubée or a Tzank syringe or by the gravity method from an ordinary funnel. The transfusion is performed slowly, always after an introduction of some physiologic solution of sodium chloride. A biologic test with from 10 to 30 cc. is obligatory in every case.

We have not observed toxic manifestations in a series of almost 1,000 transfusions of cadaver blood. The seven fatalities occurring in our series were caused in each instance by a technical error and were not caused by the cadaver blood as such. In one case the necropsy established air embolism as the cause of death; in another, death was due to an anaerobic infection developing at the site of venesection. Two fatalities were caused by faulty grouping and incompatible blood. In three cases a typical picture of hemolysis was present.

The therapeutic results did not differ from those obtained by transfusion of blood from living donors. The particular advantage of our method is made evident in those acute emergencies in which the loss of time entailed in calling the donor and obtaining blood from him may prove fatal. Profound shock developing in the course of a brain operation or a prolonged laparotomy furnish just such emergencies. To warm up the blood removed from the refrigerator takes five or six minutes. Another valuable feature is the possibility of using blood from the same cadaver for repeated transfusions. It is obviously impossible to take from 450 to 500 cc. of blood from a living donor at intervals of half an hour for three transfusions. This, however, becomes necessary in grave traumatic shock in which the effect of the first transfusion is spent about the time the amputation is begun, while the effect of the second transfusion performed during the operation lasts only a short time, making it advisable to give a third one. It is not safe to change donors in the course of anesthesia, because there is no time for the performance of the biologic test. The problem is solved by having in stock preserved cadaver blood. The greater the loss of blood and the less there is of the patient's blood to mix with the transfused blood, the more important is the question of ideal compatibility. Having given some 200 or 250 cc. of blood while preparing for the operation and being convinced of the compatibility of the blood, one need not hesitate to use the same for a second and, if need be, for a third transfusion.

Experience in our clinic with more than 300 cases of acute gastric duodenal hemorrhage has demonstrated that it is best to operate on these patients at once if they enter in the first twenty-four hours. They require, however, massive blood transfusion during and immediately after the operation. Conditions are much graver when patients are admitted after repeated hemorrhages, from three to four days after the initial bleeding. Here it is safer not to operate but to treat them with oft repeated small transfusions.

I was, however, compelled as a last resort to operate in some of these cases. The occasional saving of such a patient in my opinion was in no small degree due to repeated massive transfusions of blood from the same source kept for just such occasions.

Two recent cases demonstrate these statements:

A 17 year old boy was admitted to our clinic Feb. 26, 1935, because of a profuse gastric bleeding. His pulse was 112, hemoglobin 17 per cent, blood group A. V. An immediate transfusion with 20 day old blood of the A. V. group had the desired effect. The vomiting stopped, the skin became pink and the general condition was satisfactory. On the following day he developed pallor, loss of consciousness and imperceptible pulse. There was profuse tarry stool. Transfusion of 150 cc. of blood of group O again revived him. During the night another hemorrhage took place and the patient was in imminent danger of dying. The resident surgeon gave a transfusion with 350 cc. of blood from the same source as the previous transfusion. Feeling that conservative measures would not avail here, I decided to operate. A laparotomy performed under local anesthesia revealed a deep duodenal ulcer penetrating into the pancreas. As soon as the main gastric blood vessels were ligated, transfusion with compatible blood A. V. was begun. By the time the operation of gastric resection was ended, the patient had received 1,100 cc. of cadaver blood. He made an uneventful recovery.

In the following case, blood from one source was used each time:

This patient was brought to the clinic in fairly good condition following a single hemorrhage. He refused operation. Because of signs of internal hemorrhage, a transfusion with 280 cc. of cadaver blood was given. The condition improved, but two days later he had another hemorrhage and his hemoglobin was now 28 per cent and the number of red cells 1,750,000. The next day there was another hemorrhage and this time 300 cc. of blood was given. I again urged an operation, but the patient declined. Two days later he vomited a quantity of blood and became pulseless. His condition again improved after transfusion of 200 cc. of blood. The hemoglobin was 12 per cent and erythrocytes numbered 900,000. The patient now expressed the wish to be operated on. Hematemesis during the night rendered him a hopeless risk. As a last resort I operated under local anesthesia and demonstrated a large callous ulceration high up on the lesser curvature. On ligation of the gastric vessels, transfusion was started and by the time the first Billroth resection was completed 1,000 cc. of blood and 500 cc. of physiologic solution of sodium chloride were infused. The patient was removed from the operating table in good condition and made a good recovery. His hemoglobin before the operation was 12 per cent and the number of erythrocytes was 900,000. Immediately after the operation the hemoglobin was 34 per cent and the number of erythrocytes 1,900,000. At the time of leaving the hospital his hemoglobin was 32 per cent and erythrocytes 2,360,000.

Our experience with cadaver blood transfusions embraces 924 transfusions. Besides, our clinic sent out more than 100 flasks of cadaver blood to various hospitals and clinics.

CONCLUSIONS

1. Transfusion of cadaver blood was demonstrated in animal experiment and proved its therapeutic value in a considerable clinical material.

2. Cadaver blood obtained from six to eight hours after death remains sterile and preserves its living properties.

3. The recipient of cadaver blood is afforded ample safeguards by serologic tests of the blood, a bacteriologic checkup as to its sterility, and a careful necropsy.

4. Because of fibrinolysis, blood of individuals dying suddenly remains fluid and can be preserved for more than three weeks.

5. The therapeutic effect of cadaver blood does not differ from that of blood from living donors.

6. The technic of obtaining blood from a cadaver is simple and does not require any special apparatus.

7. Organization of stations for collection of fresh cadaver blood should offer no difficulties in the larger cities, particularly in the large hospitals for emergency cases. The supply could come from traffic accidents as well as from the medical service where deaths from coronary thrombosis and angina pectoris are not rare.

THE RELATIVE IMPORTANCE OF SPECIFIC SKIN HYPERSENSITIVITY IN ADULT ATOPIC DERMATITIS

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The idea that certain skin diseases are due to changes in the "nerves"—and even in the psyche—is by no means new. However, such changes have been constantly and conclusively demonstrated in only a small minority of dermatologic entities; for example, herpes zoster, syringomyelia, nervous leprosy, the facies oleosa of parkinsonism, and certain cases of pruritus vulvae and pruritus ani.

There is another group of dermatoses in which the psychoneurogenic factor has been stressed but admittedly not conclusively proved. Nevertheless, many authors continue to give serious consideration to the possible rôle of the psyche and of the nervous system in these dermatoses.

One clinically important representative of the latter group is "generalized neurodermatitis." The very name that Brocq and Jacquet in 1891 gave this dermatologic entity—"nevrodermite diffuse"—expressed their opinion as to its "nervous" origin. This opinion has continued to be shared by many good observers, among whom, most recently, have been Stokes [1] and van de Erve and Becker.[2]

A newer concept is advanced by such authors as Rost,[3] Sulzberger, Spain, Sammis and Shahon,[4] Coca [5] Hill and others.[6] These observers considered specific vascular skin hypersensitivity to foods and/or to environmental allergens to be the essential factor in the production of disseminated neurodermatitis. The apparent relationship between disseminated neurodermatitis and hay fever, asthma and infantile eczema—the "atopic" diseases (Coca)—has led several of these authors to propose substituting the name "atopic dermatitis" for "disseminated neurodermatitis" or "neurodermatitis disseminata." Hereafter, we shall employ the name "atopic dermatitis" in place of any of the older terms, such as disseminated neurodermatitis, pruritus with lichenification, prurigo diathésique, flexural eczema, and hay fever eczema.

In consideration of the apparently conflicting opinions held by these two schools, we believe it may be of interest to review our observations in more than fifty cases of typical adult atopic dermatitis, with particular reference to these two contrasting points of view.

In our cases of this dermatosis (not uncommon in New York City), certain characteristics occurred with sufficient regularity to enable us to set up a composite picture of the syndrome of atopic dermatitis.[7]

1. Stokes, J. H.: Functional Neuroses as Complications of Organic Diseases: An "Office" Technic of Approach with Special Reference to the Neurodermatoses, J. A. M. A. **105**: 1007 (Sept. 28) 1935.
2. van de Erve, J. M., and Becker, S. W.: Functional Studies in Patients with Neurodermatitis, J. A. M. A. **105**: 1098 (Oct. 5) 1935.
3. Rost, G. A.: Die Ekzemfrage vom kausalgenetischen Standpunkte, Deutsche med. Wchnschr. **60**: 211 (Feb. 7) 308, (Feb. 21), 350 (Feb. 28) 1930.
4. Sulzberger, M. B.; Spain, W. C.; Sammis, F., and Shahon, H. I.: Studies in Hypersensitiveness in Certain Dermatoses: I. Neurodermatitis (Disseminated Type), J. Allergy **2**: 423 (July) 1932.
5. Coca, A. F.: Specific Diagnosis and Treatment of Allergic Diseases of the Skin, J. A. M. A. **103**: 1275 (Oct. 27) 1934.
6. (a) Sulzberger, M. B.: A Suggestion for the Classification of Certain Allergic Dermatoses, J. Michigan M. Soc. **34**: 78 (Feb.) 1935. (b) Hill, L. W., and Sulzberger, M. B.: Evolution of Atopic Dermatitis, Arch. Dermat. & Syph. **32**: 451 (Sept.) 1935.
7. We have recently had occasion to discuss this entire syndrome with Drs. Francis M. Rackemann, Lewis Webb Hill, B. Thurber Gould, Henry N. Pratt and Jacob Swartz, all of Boston. This conference brought to light a remarkable unanimity of observations and opinions. We are indebted to these gentlemen for the opportunity of obtaining this general confirmation of our point of view.

FAMILY HISTORY

Roughly, in more than half of our cases, one or more members of the family have or have had one or more of the atopic diseases.[8]

It seems to us that this familial atopic background speaks in favor of the atopic nature of the dermatosis under consideration, for even in vasomotor rhinitis and asthma the familial history of atopy is present in only about 50 per cent of the cases.

Unfortunately, we have been unable to determine the neurologic and psychiatric heredity in our cases. As dermatologists, we have found it to be beyond our powers to elicit and evaluate the psychiatric and neurologic family histories of our patients.

PERSONAL HISTORY

More than half of our cases were associated with one or more atopic diseases. Thus, here again, the conditions found are analogous to those in vasomotor rhinitis, and particularly to those in asthma, in which fully 50 per cent are without history of other atopies.

In our material we encountered no preponderance of manifest psychic or neurologic disturbances. In fact, our patients in this group impressed us as being neither more nor less "nervous," irritable or psychopathologic than any group of patients suffering from other chronic, distressing and sometimes disfiguring and incapacitating dermatoses. On the contrary, our atopic dermatitis patients, as a group, impressed us as showing fewer psychoneurotic tendencies than were found, for example, in a group of patients with moderately severe acne vulgaris.

We know of no way of accurately gaging such imponderables as "nervousness," "tension states," "temperamental difficulties" and "protoplasmic instability." Therefore, in gaining our impressions, we have been obliged to rely solely on close clinical observation.

Of course, we have encountered "nervousness," irritability and the like in a few of our cases. But we wish to emphasize that we have found no proof that this "nervousness" is a causal factor in the production of the dermatosis. In our material we have gained the impression that these occasional instances of "nervousness" were (1) purely coincidental, (2) concomitant (i. e., psychoneurologic disturbances caused by the same factor or factors producing the dermatologic manifestations) or (3) clearly the comprehensible result of the normal reaction to the dermatosis and its "maddening" itching, loss of sleep, continuous worry about the appearance, and related conditions.

COURSE OF THE DERMATOSIS

Although we are here concerned only with atopic dermatitis in adults, we must not fail to mention that, in many cases, the first phase of the dermatosis is often an infantile eczema. In other cases, three distinct phases are to be noted; namely, the dermatosis in infancy, in childhood and in the adult. These different phases may be separated by year-long intervals of complete freedom, or they may continue uninterruptedly and be merged by imperceptible transition with the succeeding phase.[6b]

The stage of atopic dermatitis that we are discussing here is a disease of early adult life. The average age of our patients at first consultation was 19 years. (It is noteworthy that we have never seen a typical case of atopic dermatitis in an individual over 50 years of

8. We do not here include migraine, gastro-intestinal allergy, allergic epilepsy, urticaria, angioneurotic edema and other questionable atopies but have considered only asthma, hay fever and allergic vasomotor rhinitis and infantile eczema.

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age. Even in middle age, this dermatosis is extremely rare.)

The course of the dermatosis is chronic, but in the majority of cases there are remissions during which the skin may be entirely normal. Recurrences are irregular in some cases; in others they are periodic and even distinctly seasonal. Among our cases there is a large group which exacerbates regularly in the period July-September and clears up after several months, only to recur at the same season in the next year. Even during the active attacks there are often rapid variations in the severity of both subjective and objective manifestations. We have never been able to discover the causes of these fluctuations, but many patients will insist that exacerbations are unquestionably due to one or more of the following substances: (*a*) heat; (*b*) cold; (*c*) rapid changes of temperature; (*d*) perspiration; (*e*) certain foods, notably fish, eggs and "acid foods"; (*f*) specific articles of clothing, such as certain silk, wool or satin garments; (*g*) almost all greases and greasy ointments; (*h*) work, worry, "strain" and "nervous upsets."

Because of the unpredictable course of this disease, we have been unable, in general, to verify the patients' statements with regard to the rôle played by the incriminated factors. We have, however, occasionally found objective evidence that the ingestion of a food (such as fish, eggs or wheat) or the wearing of a garment (such as a silk scarf or a woolen dress) has been followed by an exacerbation of a more or less quiescent atopic dermatitis. We have also noted that the appearance of a common cold was in some cases regularly followed by a flareup of the existing condition.

However, we know of no regularly successful production of the dermatosis by deliberate exposure to the presumptive causes during dermatosis-free periods. It must therefore be emphasized that, although the mass of clinical evidence suggests the rôle of exposure to certain allergens, the conclusive proof of the causal rôle of any and all of these agents is still lacking.

But the deliberate experimental exposure to allergens has not always been entirely without results. While we have never reproduced the actual atopic dermatitis, we have in some instances succeeded in eliciting other definite responses that prove skin hypersensitivity; for example, itching and urticaria after ingestion or injection of fish, and localized hives after contact with silk.

Just as it has been impossible for us to produce the dermatosis by experimental exposure, so has it also been impossible to effect a cure by the removal of suspected substances. We have noted, however, that changes of environment (home or hospital) or an intercurrent infection other than the common cold have in some cases led to a rapid clearing up of the active dermatosis. The beneficial effects of changes of environment may be due to the elimination of causal allergens; on the other hand, in some instances the benefit may be due to the removal of causes of emotional upsets.

However, it is difficult to interpret the occasionally striking benefits that follow intercurrent infections as other than a nonspecific immunologic alteration.

It will suffice to mention here that precisely these two differences—change of environment and intercurrent infection—are frequently and as strikingly beneficial in asthma, hay fever and infantile eczema.

A critical analysis of the course of atopic dermatitis must lead to the one conclusion that skin hypersensitivity is a part of the producing mechanism in some of our cases. It is evident, however, that, just as in vasomotor rhinitis and in asthma, other important factors are still entirely unknown.

DESCRIPTION OF THE DERMATOSIS

This dermatosis, not to be confused with "contact" or true eczema, has been so well described that we shall here be brief.

The outstanding symptom is itching, continuous or in crises. This itching is frequently increased by various factors, which we have already mentioned.

The primary dermatologic lesion is a papule, or a number of confluent papules forming lichenified areas. In uncomplicated cases there is no vesiculation; but there may be weeping, crusting and exudation, usually due to superimposed external irritation and infection. The lichenified plaques are not very sharply demarcated. They vary in color from a bright pinkish red to a tannish brown or a dirty grayish brown. The lichenified, thickened areas are usually surrounded by outlying, scattered and often excoriated papules.

In typical cases the distribution is characteristic and often diagnostic. The predominant localization is in the flexures: the antecubital and popliteal spaces, and the front and sides of the neck. Additional favorite sites are the eyelids, the forehead and scalp, the dorsa of the wrists, the perionychial areas of the fingers, and the dorsa of the feet. However, no skin area is immune; scattered plaques or papules are not infrequently found anywhere on the skin. In fact, severe cases may present involvement of the entire integument.

While the eruption is often symmetrical, it is never zoniform, segmentary, systematized, or in any way distributed along the course of cutaneous or other nerves.

In our experience all patients have dry skins and not infrequently even a fully developed keratosis pilaris. In fact, the follicular localization of the lichen papules may often be noted. In many patients we have observed a tendency toward cutis anserina. We have seen (in two cases) the very first manifestations of this dermatosis to be in the form of urticarial lesions, sometimes confined to the cubital and popliteal spaces.

The patients are otherwise healthy and, as mentioned previously, the average age was 19 years at the first consultation.

We do not believe that the appearance of this dermatosis can be interpreted as an argument in favor of either the psychoneurologic or the sensitization concept.

RESULTS OF INVESTIGATIVE PROCEDURES

We have employed three methods of skin testing:

1. *Scratch Tests.*—In more than 50 per cent of our cases scratch tests have given positive results to various foods and environmental allergens. We wish to point out that, as a group, these patients possess the strongest and most polyvalent hypersensitivity to be encountered. (As an example, one patient, tested with 100 allergens, gave fifty-six markedly positive reactions.) However, it must be mentioned that, just as in (non-hay fever) vasomotor rhinitis and in asthma, almost 50 per cent of the clinically identical cases were negative to all scratch tests. Without wishing to draw conclusions at this point, we merely state that the majority of fall-exacerbating cases presented positive wheal reactions to ragweed pollens. We have also noted that silk elicited by far the highest percentage of strongly positive reactions. (House dust was unfortunately not included in our tests.)

2. *Passive Transfer Tests.*—The patients giving positive reactions to scratch tests also had a high percentage of passive transfer reagins in the blood serum. We have seen as many as twenty-eight different reagins of high titer in one and the same serum. We have not been able to demonstrate that substances giving positive wheal reactions with reagins were more likely to be of clinical significance than those eliciting nonreaginic skin responses.

3. *Patch Tests.*—In these cases, patch tests are negative. In fact, it is astonishing, in view of the apparently highly irritable skins, to find that these patients rarely react to patch tests. Not only are they far less sensitive to patch tests than are contact eczema patients, but, what is more remarkable, our patients with atopic dermatitis have been less sensitive than normal persons. There is, however, one exception: A fairly representative proportion of cases manifested papulopustular reactions to certain salts of heavy metals, and, in particular, to nickel sulfate. This finding confirms that of Steiner.[9] (This reaction to heavy metal salts has not yet been properly evaluated in relation to atopic dermatitis or to any other disease. However, its papulopustular nature and its course differ markedly from the usual response seen to patch test in typical eczematous hypersensitivity. These two different forms of reaction cannot, without further study and proof, be accepted as of identical significance.)

COMMENT

It seems to us that the aggregate result of the observations with these three test methods points strongly to the conclusion that the dermatosis under discussion belongs to the atopic group.

As stated before, conclusive proof is still lacking that this dermatosis is a specific skin hypersensitivity to atopens; for, to our knowledge, atopic dermatitis has not been regularly and deliberately reproduced by experimental exposure to allergens, as have been asthma and hay fever. However, it seems to us that the scratch test and passive transfer results, weighed in conjunction with certain aforementioned clinical observations, constitute strong presumptive evidence in favor of the important rôle of specific skin hypersensitivity in the production of atopic dermatitis.

There are, of course, some authorities who will insist that the skin test and reagin manifestations are in no way related to the dermatosis, except as far as they demonstrate its association with other atopic diseases, past, present or potential. In other words, they state that the skin disease is not due to a specific skin hypersensitivity but is only associated, in some inexplicable way, with atopic diseases. This hypothesis seems tenuous. Before it can possibly be accepted it must be supported by at least as much evidence as we have adduced in support of the probable clinical importance of the skin hypersensitivity. As far as we know, no such evidence has as yet been submitted.

Our further observations in atopic dermatitis can be summarized briefly as follows: There was a moderate to marked eosinophilia in about 50 per cent of our cases. Dermographism, of either the red or the white type, was not a constant finding; but, in isolated cases, there was such marked wheaing to trauma that skin testing by the direct scratch or intracutaneous method was impossible. This dermographism sometimes disappears and recurs spontaneously. Many of our cases showed signs considered to be diagnostic of vagotonia. Others showed manifestations of sympatheticotonia or of a mixed form of vegetative neurosis. The sum of the results of our investigative procedures must, in our opinion, speak in favor of the atopic nature of this dermatosis and even in favor of the clinical rôle of skin hypersensitivity in the production of atopic dermatitis.

THERAPY

Many therapeutic measures have been found to be more or less efficacious, and their benefits to be more or less lasting. Local roentgen therapy is the sovereign remedy and often brings quick results, particularly in the first few attacks. As topical applications we have found pastes and powdery lotions to be superior, in general, to ointments. Resorcinol, the tars, ethyl aminobenzoate, menthol and phenol can often be employed to advantage in these vehicles. Nevertheless, certain cases become inveterate and frequently constitute the most difficult therapeutic problems. While some of these defy every therapeutic measure, we have found one or more of the following to be worthy of trial: (1) generalized ultraviolet radiation (well below the erythema dose), (2) arsenic internally, (3) sedatives (not morphine or other opium derivatives), (4) pilocarpine, ephedrine and atropine, (5) autohemotherapy, (6) calcium injections, (7) strontium bromide injections, (8) hyperpyrexia, (9) dilute hydrochloric acid by mouth, (10) nonspecific vaccine therapy (catarrhal vaccine), and (11) thyroid extract.

As previously stated, hospitalization or other change of environment sometimes produces rapid and marked improvement. Just as reported by other observers,[10] we have also found that some of our patients improved when they were relieved from psychic, emotional upsets, and from the frictions and obligations of everyday life. However, this beneficial effect was no more striking than that encountered in patients with proved sensitizations, such as asthma or hay fever, or in individuals suffering from many organic (peptic ulcer, coronary disease) and even infectious diseases (tuberculosis). In our opinion it is dangerous to conclude that a disease must be psychogenic for the one reason that the psyche exerts an influence on its course.

Elimination of suspected foods, reputedly efficacious in the hands of some observers, has proved disappointing in our material. We admit that we have found great difficulty in carrying out rigid elimination diets in our ambulatory patients.

We have not been able to test the effects of elimination of air-borne allergens, as we have had no available allergen-free rooms. Since our reacting patients regularly had skin test reactions and reagins not only to foods but also, in at least equal degree, to inhalant substances, we do not believe that the significance of the positive skin tests can be properly evaluated until both suspected foods and suspected environmental allergens can be simultaneously eliminated (elimination diets while in allergen-free rooms).

We have attempted specific hyposensitization in several cases, by means of injection of the suspected atopens. This measure has been without success. But we do not consider that the failure of this method negates the existence of a specific skin hypersensitivity, for it is well known that persistent hyposensitization injections in patients with hay fever and asthma, while they often reduce the clinical hypersensitivity of the mucous membranes, do not, as a rule, accomplish a noticeable reduction in skin sensitivity.

9. Steiner, K.: Ueber die Ergebnisse und den Wert der "funktionellen Hautprüfung" mittels der Lappchenprobe bei Hautkranken und bei Haut- "Gesunden," Arch. f. Dermat. u. Syph. **157**:600, 1929.

10. Stokes,[1] van der Erve and Becker.[3]

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It must be mentioned that atopic dermatitis not only runs an eccentric course with, as yet, inexplicable exacerbations and remissions but also, in most cases, leads sooner or later to an equally mysterious spontaneous recovery.

SUMMARY AND CONCLUSIONS

1. In a study of more than fifty cases of typical adult atopic dermatitis we could find no convincing evidence of the primary importance of psychoneurogenic factors in the production of atopic dermatitis.

2. The family history, the personal history, the course and the results of investigations and therapy demonstrate that this dermatosis is closely associated with diseases of the atopic group.

3. Our observations also strongly suggest that specific skin hypersensitivity is in many cases an important factor in the production of atopic dermatitis.

4. There is as yet no convincing evidence that atopic dermatitis can be regularly produced by deliberate exposure to suspected allergens or that the dermatosis can be regularly ameliorated by removal of allergens.

5. While the adduced evidence strongly suggests that atopic dermatitis is due in many cases to specific skin hypersensitivity, unequivocal proof is still lacking.

962 Park Avenue.

Clinical Notes, Suggestions and New Instruments

THE USE OF PAPAVERINE IN ACUTE ARTERIAL OCCLUSIONS

GÉZA DE TAKÁTS, M.D., CHICAGO

Papaverine, an alkaloid of the opium group, was first advocated for the relief of smooth muscle spasm by Professor Pal [1] of Vienna. On the basis of clinical observations backed up by animal experiments, he stated that the drug relaxes smooth muscle without paralyzing it and recommended it in hypertension, in angina pectoris and for the abortion of uremic crises. A comprehensive pharmacologic study of this drug was given by Macht.[2] Summing up the circulatory effects of papaverine, he noted a fall in blood pressure, which was due partly to the effect on the brain but chiefly to peripheral action, as it produced a marked vasodilatation especially of the peripheral and splanchnic arteries. The drug increased coronary circulation, slowed the heart and at the same time increased the strength of contraction. As to its effect on respiration, papaverine dilated the bronchi and diminished the rate of respiration but increased the volume output and alveolar ventilation. It did not depress the respiratory center, as shown by its lively response to carbon dioxide inhalation. It relaxed all types of smooth muscle without paralyzing them. Its analgesic property could be demonstrated after the subcutaneous injection of 40 mg. in man, which corresponded to the effect of about 10 mg. of morphine. The dose that both Pal and Macht recommended in man was not to exceed 0.06 Gm. (1 grain) by mouth, from 0.06 to 0.10 Gm. (1 to 1½ grains) subcutaneously, and from 0.01 to 0.04 Gm. (one-sixth to two-thirds grain) intravenously.

Recently Denk [3] made the significant suggestion of treating patients suffering from acute embolic occlusion with intravenous doses of papaverine. He stated that the results in ten cases were equal to those obtained by embolectomy and he felt that the results were due to a release of a vessel spasm, which occurs at the time of the acute embolism and represents an additional menace to the affected part.

It has long been supposed that sudden arterial obstructions produce a reflectoric vessel spasm both in the affected artery and in the collateral vascular tree. The literature containing evidence in this direction has been concisely summarized by Allen and MacLean.[4] The most clear-cut evidence is that of Mulvihill and Harvey,[5] who found that, when the external iliac arteries of dogs were ligated, a drop in the temperature of the hind limbs developed, which gradually subsided in an average of thirteen hours. When, however, a lumbar sympathectomy was performed before the ligation, the drop in temperature did not occur. If sympathectomy was performed when the temperature had already dropped, it immediately returned to normal. Thus, the exclusion of the vasoconstrictor influence on the limb prevented the manifest circulatory embarrassment.

In a previous communication I [6] referred to the use of papaverine to overcome the initial spasm of collaterals in acute vascular occlusions. Five cases are now presented:

REPORT OF CASES

CASE 1.—C. H., a 42 year old, stocky, robust man, had an operation for inguinal hernia under local anethesia, Dec. 4, 1934. There followed an entirely uneventful convalescence with primary union of the wound. He was discharged from the hospital on the fourteenth day. On the fifteenth day, while sitting quietly at home reading the paper, he was suddenly seized with dyspnea and a feeling of impending death. He first became pale, then cyanotic and lost consciousness. I arrived at his home five minutes later. His pulse was barely palpable; his skin was cold and clammy; his respiration was superficial and very rapid. One-sixth grain (0.01 Gm.) of papaverine hydrochloride was given intravenously. Within two minutes his pulse became slower and increased in volume. The respirations were slower and deeper. His color became normal. Subsequent portable x-ray examination revealed a triangular infarct in the right lung, thus confirming the diagnosis of pulmonary embolism. He recovered completely.

CASE 2.—Mrs. I. A., aged 42, referred by Dr. O. G. Schnetzer, developed a fever following the extraction of four teeth with apical abscesses. April 7, 1935, she developed an arterial occlusion first in the left and later in the right limb. Both limbs were cold, pulseless, cyanotic. Pain was extreme, unrelieved by morphine. Papaverine hydrochloride (one-sixth grain) was given about eight hours later, as none was available in the hospital when the patient was first seen. This seemed to relieve the pain, and the color of the feet improved. She was admitted to St. Luke's Hospital next day. During the first three days, papaverine (one-sixth grain) was given twice a day intravenously, which seemed to calm the extremely restless patient and enable us to place her in the negative pressure apparatus. The color of the feet gradually became normal until the tenth day after admission, when another shower of emboli was thrown into first the right and then the left leg. The left foot became bluish gray and, while pulsations were still present in both femoral arteries, oscillations, taken with Pachon's oscillometer, were absent at the midthigh on the left and present on the right. No pulses were felt at or below the popliteal arteries. One-half grain (0.03 Gm.) of papaverine hydrochloride was then administered intravenously and the observations were made that are recorded in the accompanying table.

To sum up these observations, the pulse and blood pressure dropped but not to a subnormal level. The temperature of the big toe rose, although not to a level of normal vasodilatation (31 C., or 87.8 F.). The color of the foot improved with the exception of the second toe and the pain was relieved. In this calm, relaxed condition, which was by no means the type of somnolence or sleep produced by the barbiturates, the limbs could be placed in the boots of a negative pressure apparatus and treatment could be given for half an hour, which the patient was unable to stand previous to the injection of papaverine.

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1. Pal, J.: Das Papaverin als Gefässmittel und Anästheticum, Deutsche med. Wchnschr. **40**: 164-168 (Jan. 22) 1914.

2. Macht, D. I.: A Pharmacologic and Clinical Study of Papaverine, Arch. Int. Med. **17**: 786-805 (June) 1916.

3. Denk, W.: Zur Behandlung der arteriellen Embolie, München. med. Wchnschr. **81**: 437-439 (March) 1934.

4. Allen, E. V., and MacLean, A. R.: Treatment of Sudden Arterial Occlusion with Papaverine Hydrochloride, Proc. Staff Meet., Mayo Clin. **10**: 216-220 (April 3) 1935.

5. Mulvihill, D. A., and Harvey, S. C.: Studies on Collateral Circulation: 1. Thermic Changes After Arterial Ligation and Ganglionectomy, J. Clin. Investigation **10**: 423-429 (Aug.) 1931.

6. de Takáts, Géza: Obliterative Vascular Disease: Preliminary Report on Treatment by Alternating Negative and Positive Pressure, J. A. M. A. **103**: 1920-1924 (Dec. 22) 1934.

While the right leg was seemingly in a state of sustained circulation the color of the left foot again became worse in spite of a number of negative pressure treatments and 1 grain (0.065 Gm.) doses of papaverine by mouth three times a day. The second shower obviously had plugged the origin of the profunda femoris and the patient was returned to the care of Dr. O. T. Roberg at the Swedish Covenant Hospital. There was still no gangrene at the time of discharge but the second toe was cyanotic. At autopsy, a week after her discharge from St. Luke's Hospital, thrombotic occlusions of both popliteal arteries were found, but no source of any embolism.

Case 3.—Mr. C. W. S., a patient of Dr. Donald Abbott, was seen in consultation at the Billings Memorial Hospital. The patient had a severe coronary occlusion with auricular fibrillation on June 18, 1935. Two weeks later the right foot became cold and cyanotic but gradually improved. July 6 the right femoral artery became suddenly occluded. There developed a discoloration of all toes, but especially the first and second were involved. The skin became wrinkled and began to blister. When seen thirty-six hours after the vascular occlusion there was no pulse in the pedal and popliteal arteries. The oscillometric curves were negative to the midthigh. The histamine reaction was negative below the knee. A diagnosis of popliteal embolism with a second shower to the origin of the profunda femoris was made. Passive vascular exercises from five to seven hours a day had already been started without any apparent effect on pain or circulation. A constant temperature heat cradle was employed and papaverine hydrochloride one-fourth grain (0.016 mg.) twice a day was started intravenously, which was continued for four days.[6]

Observations in Case 2

Time	Pulse	Blood Pressure	Temperature of Toe*	Color of Foot	Subjective Symptoms
Before injection	130	140/85	27.2 C. (80.9 F.)	Grayish blue	Restless, moaned in pain
2 minutes after	130	140/80	27.4 C. (81.3 F.)	Same	Same
5 minutes after	120	140/75	27.8 C. (82 F.)	Definitely better	Same
10 minutes after	110	110/75	28.2 C. (82.7 F.)	Normal except 1st and 2d toes	Calm, dozing
20 minutes after	100	110/70	29 C. (84.2 F.)	Normal except 2d toe	Sleepy but could be aroused
30 minutes after	100	110/70	29 C. (84.2 F.)	Normal except 2d toe	Calm, comfortable

* Room temperature was 27.5 C. (81.5 F.), humidity unknown.

Soon after the first injection a marked change took place in the color of the affected limb. It turned pink; the cyanosis of the toes disappeared. In order to sustain the gain in circulation, passive vascular exercise treatments were maintained for several weeks. A total of forty-one hours was given, at which time the collateral circulation was quite adequate but the pedal pulses were still absent. The histamine flares were normal throughout the extremity. On July 14 a sudden abdominal cramp was noted, which was interpreted as a mesenteric occlusion. July 16 a cerebral embolus followed by facial asymmetry and anarthria occurred. Passive vascular exercise treatments were then discontinued. July 28 another coronary occlusion was diagnosed, followed by a pericardial friction rub. The patient was transferred to his home and at this writing, two months after the vascular occlusion, the circulation of the limb was maintained outside an elliptic area of cutaneous gangrene just below the knee over the tibia, which slowly healed.

Case 4.—J. V., a woman, aged 46, was seen in consultation with Dr. A. V. Partipilo thirty hours after an acute vascular occlusion. The patient had had a chronic hyperthyroidism with auricular fibrillation and an adequately controlled diabetes. A diagnosis of an embolic occlusion at the iliac bifurcation was made. There was a complete absence of all peripheral pulses, including that of the femorals at the groin and a marked vessel spasm, which was manifest as high as the interiliac line. Both feet were cyanotic. Pain could not be controlled by morphine. Papaverine hydrochloride one-half grain (0.03 Gm.) was started twice a day intravenously with no effect on the gangrene and only slight relief from pain. The patient refused to be hospitalized, developed a bilateral gangrene to the knee, and died eight days after the embolic occlusion.

Case 5.—W. S. was hospitalized in the medical service of Dr. R. W. Keeton at the Illinois Research and Educational Hospital with the diagnosis of acute bacterial endocarditis since April 20, 1935. On May 9 he complained of excruciating pain in the left upper quadrant radiating to the shoulder, which was interpreted as a splenic infarct. July 25 a diagnosis of left popliteal embolism was made. A constant temperature heat cradle was used and sedatives were given. When he was seen thirty hours after the onset, there were no pedal and popliteal pulses, and the foot was numb, cold and cyanotic. The first and second toes showed begining gangrene. Papaverine was started by mouth, 1 grain (0.065 Gm.) three times a day, but because of some misunderstanding in the drug room intravenous injections were started July 27, approximately fifty hours after the vascular occlusion and were continued for five days. The gangrene progressed but remained dry and began to demarcate at the lower third of the leg. August 19 the patient had a left cerebral and on the 21st a brachial embolus. He died on the 22d with signs of respiratory failure.[7]

COMMENT

These five case reports would indicate that the arterial spasm accompanying an acute vascular occlusion may be relieved by an early intravenous administration of papaverine. While in the case of pulmonary embolism it seemed to act as a life-saving measure (although the possibility of spontaneous recovery cannot be denied), in the case of peripheral occlusion it was possible to follow the marked subjective and objective improvement step by step. As Denk has pointed out, the extent and duration of the occlusion and the rigidity of the vessel wall may naturally set a limit to the capacity of the drug in aiding collateral circulation. He also warned of delaying embolectomy if the circulation did not rapidly improve.

In the case of Allen and MacLean there was a startling return of circulation in the right leg, while in the left, in which there was a complete occlusion of the external iliac artery, the gangrene extended slowly so as to require an amputation through the upper part of the thigh. This case is especially instructive as it proves the point observed in the second and fourth patients, namely, that a complete block of the external iliac artery or any block above the profunda femoris cannot be readily compensated even if collateral spasm is released, whereas, on the contrary, an occlusion distal to the profunda femoris can be easily overcome. Allen and MacLean also emphasized that the negative pressure treatments may act by inducing collateral circulation to open up more rapidly and this interpretation was suggested by Reid[8] in analyzing his good results in acute vascular occlusions with the intermittent negative pressure apparatus.

The importance of papaverine injections seems to lie in the fact that it is a harmless procedure. While the suction treatment or the embolectomy is naturally limited to larger medical centers, this drug is available to every practitioner and may either actually tide the limb over the critical period or enable the surgeon to operate at a time at which without papaverine the limb would have been frankly gangrenous. In the second and third cases the injection was combined with an intensive use of the suction apparatus of Reid and Herrmann. The papaverine not only calmed the patients but gave a possibly maximal vasodilatation during treatment. The desirability of reducing spasm in the extremities so treated has been stressed by Landis,[9] who employed heat for this purpose. It seems likely, however, that papaverine gives a more widespread vascular relaxation than heat could accomplish.

If papaverine is to be of any benefit, it must naturally be given as soon as the diagnosis of pulmonary or peripheral embolism is made. In the fourth and fifth cases the drug was given too late to influence the early spasm. There are no stable

7. Recently the drug was employed in a case of popliteal thrombosis following an orthopedic operation. With the exception of a pressure sore over the achilles tendon, the circulation of the foot was sustained.

8. Reid, M. R.: Diagnosis and Treatment of Arteriosclerotic Peripheral Vascular Diseases, Am. J. Surg. **24**:11 (April) 1934.

9. Landis, E. M., and Gibbon, J. H., Jr.: Effects of Alternating Suction and Pressure on the Blood Flow to the Lower Extremities, J. Clin. Investigation **12**:925 (Sept.) 1933.

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solutions of papaverine on the market. Papaverine, however, can be kept on hand in capsules, containing one-half grain (0.03 Gm.) of the crystals, and may be readily dissolved in a 1 cc. ampule of physiologic solution of sodium chloride. The solution may be quickly boiled in a spoon over a flame and the intravenous injection can be accomplished with a hypodermic needle and syringe. Slow injection is advisable. To obtain maximal benefit, the drug should be given in the first six hours, combined with controlled heat and intermittent negative pressure. Given later, the result must depend on the degree, extent and duration of organic occlusion.

The use of papaverine or its combination with controlled heat and negative pressure is by no means intended to eliminate embolectomy entirely. But very often suitable equipment and a trained surgical team are not available. Should papaverine fail, an embolectomy may still be considered; but both procedures can be effective only if used within the first six or eight hours. Contrary to the aroused interest of continental and especially Swedish physicians, the medical profession at large is still hesitant to regard arterial embolism as a case of maximal urgency.

It is possible, as Allen and MacLean suggest, that coronary, cerebral, mesenteric and renal vascular occlusions will be equally amenable to such treatment. It is likely that a better drug may become available. The principle, however, of combating the reflectoric vessel spasm of acute arterial occlusions seems an important one and deserves wide recognition among the medical profession.

SUMMARY

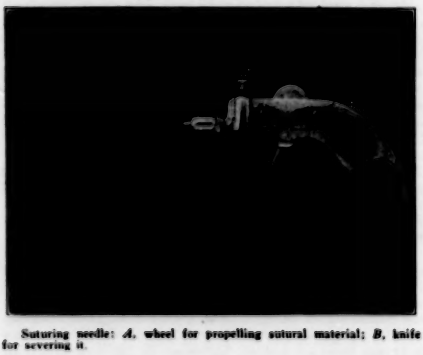
A case of pulmonary embolism, another of acute peripheral thrombosis and three cases of peripheral embolism were seen, in some of which a striking improvement of circulation resulted following the intravenous use of papaverine. The drug is an active antispasmodic and seems harmless in the doses recommended.

122 South Michigan Avenue.

A NEW SUTURING NEEDLE

O. A. NELSON, M.D., SEATTLE

The needle herein pictured was devised to facilitate and expedite the placing of interrupted sutures. Furthermore, as it uses a single strand of sutural material this needle causes less traumatism than does a conventional type of needle. The



Suturing needle: *A*, wheel for propelling sutural material; *B*, knife for severing it.

instrument consists of a hollow needle and handle, which has a wheel for propelling and a knife for cutting the sutural material. Any sized catgut, dermal or silkworm-gut can be used.

Its mode of operation is very simple. When the end of sutural material has been placed under the wheel in the handle and after the needle has been passed through the tissue to be sutured, the operator, by turning the wheel, forces the sutural material out beyond the end of the needle. Then by grasping and holding the end of the sutural material and by withdrawing the needle, the operator, by pressing the knife, can sever the sutural material at a desired length. Thus, interrupted sutures can be rapidly placed even in a deep cavity.

It was through the ingenuity of Mr. D. E. Selby, 2307 Walnut Street, Seattle, that I was able to have this instrument made.

1212 Medical-Dental Building.

LEUKEMIA WITH THROMBOCYTOSIS

CARL B. DRAKE, M.D., ST. PAUL

An unusually high blood platelet count of more than 2,500,000 is the reason for this report.

A Scandinavian woman, aged 65, was admitted to the Ancker Hospital in March 1935 because of recurrent extensive subcutaneous hemorrhages and shortness of breath on exertion. She had been in the same hospital five months before because of the same shortness of breath. This was thought to be due to a hypertension with slight decompensation and possibly a coexisting nephritis. In November 1934 the red blood cell count being 5,800,000 and the blood platelet count 1,000,000, venesection was performed at the Ancker dispensary with some subjective relief. Following this, subcutaneous hemorrhages began to appear and on one occasion a severe epistaxis.

On examination the patient's complexion suggested a polycythemia although it was not the typical brick red color. The lips were definitely cyanotic. There were large areas of subcutaneous hemorrhage over the sacrum and left shoulder, and at the center of each area was a pale tender nodule. The vision was poor, owing to a marked myopia, and the eye backgrounds showed areas of chorioretinitis attributable to the myopia, and the veins seemed a little prominent. The superficial veins of the neck were distended and the heart was definitely enlarged. This enlargement was confirmed by roentgen examination, which showed the heart to be 68 per cent of the chest diameter. Breath sounds were present at both lung bases but the roentgenogram showed cloudiness at both these areas. The liver was moderately enlarged and increased in consistency, and the spleen was palpable two fingerbreadths below the costal border. There was slight pitting of the ankles. The radial arteries were tortuous and sclerotic. The blood pressure was 190 systolic, 118 diastolic.

During the first week in the hospital, blood examinations showed the hemoglobin ranging from 70 to 84 per cent; red blood cells 4.5 to five million with many nucleated reds; white blood cells 22,000 to 33,000 with polymorphonuclear neutrophils 82 to 92 per cent, lymphocytes 7 to 11 per cent, mononuclears 2 to 5 per cent, eosinophils 1 to 2 per cent.

Further laboratory studies showed no increase in the fragility of the red cells. The blood urea was 23 mg., creatinine 1.5 mg., blood sugar 145 mg. The coagulation time was four minutes ten seconds and the bleeding time two minutes twenty seconds, both within normal limits. The urine was of normal specific gravity; the albumin varied from none to 2 plus; hyaline casts were reported occasionally and occasional white blood cells but no reds. Urobilin and urobilinogen were not present.

An Ewald test meal showed no free hydrochloric acid and 16 combined acidity.

During the patient's five months stay in the hospital repeated blood platelet counts by the usual dilution method showed figures from 1,000,000 to 2,580,000. At first an occasional megakaryocyte was the only abnormal white cell found. Toward the end of her stay in the hospital however the differential leukocyte count showed polymorphonuclear neutrophils 72 per cent, immature polymorphonuclear neutrophils 9, leukoblasts 4, stem cells 1, eosinophils 4, immature eosinophils 1 and lymphocytes 8 per cent.

Biopsy of a hemorrhagic nodule showed an organizing clot but no thrombosed vessel. Oozing and even brisk bleeding at the site of the biopsy lasted twenty-four hours and was quite distressing. For this reason a contemplated sternal puncture

Read before the Minnesota Society of Internal Medicine, Nov. 11, 1935.

was not carried out. Following the bleeding the erythrocyte count fell to 4,450,000 but subsequently returned to 5,440,000.

While the patient was in the hospital a strangulated femoral hernia necessitated operation, at which excessive bleeding was not encountered. Another severe epistaxis occurred while the patient was in the hospital and hematemesis of fresh and old blood following the biopsy.

COMMENT

The megakaryocytes have been definitely established as the source of the blood platelets. The number of platelets in the blood and megakaryocytes in the bone marrow usually correspond in conditions in which either is increased or decreased. Platelets have been found to be moderately increased following hemorrhage, in Hodgkin's disease and in chronic myelogenous leukemia. Increase has also been reported following liver therapy.

The platelet seems essential to coagulation, but the platelet count is not an index of the coagulability of blood. Spontaneous hemorrhages do occur in the presence of high platelet counts, as in the case here presented.

A blood platelet count over 2 million seems to be rare. Epstein and Kretz [1] in 1930 reported a case in many respects resembling this one with a platelet count of 2,220,000 and an erythrocyte count ranging from 5.5 to 6.5 million, the leukocyte count being from 10,000 to 15,000 without evidence of leukemia. The bleeding time was increased (finger, two minutes fifty seconds, ear, five minutes) and she had some bleeding of the gums and excessive bleeding following a tooth extraction which reduced the red blood cells to 3,800,000 and platelets to 800,000. In two years the erythrocyte count had returned to 5,400,000 and the platelets to over a million. The clotting time was not increased. These authors state that the only disease in which the blood platelets are greatly increased is erythremja and that several cases have been reported with counts of 700,000 and 800,000; also that the megakaryocytes have been found increased in the bone marrow in erythremia. They found that their patient had the most extraordinary and persistent platelet count encountered in the literature. They felt that the high red cell count warranted their classifying their case as an erythremia, although the tendency to bleeding and headaches were not consistent with a typical erythremia. They were inclined to believe that their case represented a hitherto unknown disturbance of the bone marrow, which might be called a thrombocythemia. Later in the same year (1930) and the same journal, Bode with reference to Epstein and Kretz's case mentioned a monograph by Weber and Bode on erythremia in which had been mentioned a disturbance of the bone marrow with megakaryocytes and platelets in the blood analogous to erythremia and leukemia.

Minot and Buckman [2] in an article on blood platelets report that platelets in seven of thirty-five cases of chronic myelogenous leukemia were persistently excessive, ranging from 800,000 to 2,000,000, and that petechiae and even frank hemorrhages occurred even when the blood platelet count was high. Their experience was that the platelet count is low in the lymphatic type of chronic leukemia.

In another article, Minot [3] called attention to the fact that megakaryocytes are found in the peripheral circulation and occasionally in large numbers. He had found them in myelogenous leukemia and in two cases of polycythemia vera and one of Hodgkin's disease. In one case of myelogenous leukemia, the megakaryocytes were present in the blood but no increase in platelets was found.

Downey says that megakaryocytes and increase in blood platelets can occur in polycythemia.

When the patient was first seen, the diagnosis in this case presented some difficulty. The blood platelets, red cells and myelocytes all being derived from the myeloblasts and the blood picture showing an overproduction of platelets, red and white cells, the platelets showing the greatest increase, the question arose whether or not the condition was a new entity that could be called "thrombocythemia," a blood dyscrasia analogous to erythremia but distinct from leukemia, or should a case presenting this blood picture when first encountered be diagnosed megakaryocytic leukemia. The later appearance of premature white cells justified the diagnosis of myelogenous leukemia, a grave prognosis and the expectation of the development in time of the usual coexisting anemia. The clinical picture too, with subcutaneous hemorrhages, epistaxis and enlarged spleen and liver, is consistent with the diagnosis of leukemia. If observed long enough may not those other rare cases with very high platelet count, but no early white cells in the circulation, prove to be leukemia?

1235 Lowry Medical Arts Building.

1. Epstein, Emil, and Kretz, Johannes: Ueber ein Fall von hochgradiger Thrombocytenvermehrung, Klin. Wchnschr. **9**:1177 (June 21) 1930.

2. Minot, G. R., and Buckman, T. E.: The Blood Platelets in the Leukemias, Am. J. M. Sc. **169**:477 (April) 1925.

3. Minot, G. R.: Megakaryocytes in the Peripheral Circulation, J. Exper. Med. **36**:1 (July) 1922.

AUDITORY NERVE INVOLVEMENT AFTER TETANUS ANTITOXIN: FIRST REPORTED CASE

RICHARD D. CUTTER, M.D., SAN FRANCISCO

A survey of the literature of toxic neuritis of various nerves due to the administration of tetanus antitoxin fails to reveal any report of involvement of the eighth cranial nerve. The following case is therefore of interest:

M. B., a white schoolboy, aged 14, admitted to the children's ward of Lane Hospital, Sept. 22, 1935, complained of irrationality and deafness occurring one week after the administration of tetanus antitoxin. The boy had always been in good health. About four and one-half weeks before admission he had stepped on a rusty nail in the barnyard. The wound was untreated, except for the application of iodine, and healed readily. Three weeks later he visited a physician because of twitchings in various muscle groups for one day and inability to open his jaw. Within a period of forty-eight hours he was given a total of 125,000 units of tetanus antitoxin intramuscularly, intravenously and intraspinally; the twitching subsided. Five days later (September 17) he was given an additional 1,500 units of the antitoxin into the right pectoral muscle and a severe local reaction followed. During the next few days he complained of increasing deafness, noises in the ears and double vision; his neck became rigid, he was irrational at times, and finally an itching urticarial rash developed.

At the time of admission he was seen to be very well developed with evidence of recent weight loss, weakness and exhaustion. The rectal temperature was 38 C. (100.4 F.). There was definite impairment of hearing. The jaw opened fully and the neck was not stiff. The region of the right pectoral muscle was reddened, tense and tender, and there was marked limitation of motion of the right shoulder with weakness of the right arm. The original puncture wound caused by the rusty nail was entirely healed.

The blood count showed 5,990,000 red blood cells, hemoglobin 105 per cent (Sahli), 9,100 white blood cells with 50 per cent polymorphonuclear leukocytes, 30 per cent lymphocytes and 18 per cent eosinophils. The urine showed a trace of albumin. Examination of the stool was negative. The blood Wassermann reaction was negative.

An audiogram, September 23, showed approximately 40 per cent loss of hearing for speech on the right and approximately 50 per cent loss on the left. The temperature promptly fell to normal, and during one week in the hospital the swelling and tenderness of the right pectoral region decreased markedly and the right arm regained its normal strength. The deafness increased, however, and on September 26 the loss of hearing was 61 per cent on the right and 69 per cent on the left. The patient complained of bilateral tinnitus throughout his hospital stay.

He returned to his home September 28 and was not seen again until November 7, at which time he was subjectively well and stated that the tinnitus and deafness had disappeared.

From the Department of Pediatrics, Stanford University School of Medicine.

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Audiograms revealed a loss of hearing of approximately 9 per cent in the right ear and of approximately 21 per cent in the left.

Doyle,[1] in tabulating forty-nine cases of neurologic complications of serum sickness, found that the brachial plexus was more frequently involved than any other portion of the nervous system. Next in frequency were neuritis of the radial nerve and optic neuritis. In the literature surveyed, none of the reports of neurologic accidents following administration of various antitoxins mentioned involvement of the eighth cranial nerve.

In the present case the occurrence of marked deafness during the course of serum sickness and subsequent recovery of almost normal hearing seem quite definitely to establish the diagnosis as nerve deafness due to the administration of tetanus antitoxin.

The transient weakness of the right arm during the course of the patient's illness might be interpreted as an involvement of the brachial plexus on the right due to serum administration, but it seems more likely to have been a pseudoparalysis due to pain and tenderness at the site of the serum injection in the right pectoral region, since the normal strength of the arm returned as the pectoral pain and swelling subsided.

2398 Sacramento Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

ANNUAL MEETING OF THE COUNCIL ON PHYSICAL THERAPY

The tenth annual meeting of the Council on Physical Therapy since it began to function was held at the Palmer House on Friday and Saturday, January 10 and 11. Dr. Harry E. Mock, Chicago, was reelected chairman and Dr. Frederick J. Gaenslen, Milwaukee, vice chairman.

A report was given of the work being done with the aid of research grants. Several recipients have published reports of their investigations. Recommendations were made as to types of research which the Council thought advisable to encourage during 1936. Applications for grants are available by writing to the secretary of the Council.

Postgraduate and undergraduate instruction in physical therapy was discussed. It was believed that one of the most feasible ways, as demonstrated during the past years, to acquaint the general practitioner with the simpler forms of physical therapy was through the medium of city, county and state medical meetings. Consultants on education aid the Council's Committee on Education with its educational program. Consultants elected for 1936 are Drs. Bernard Fantus, Chicago; A. J. Kotkis, St. Louis; Richard Kovacs, New York, and Franklin P. Lowry, Newton, Mass.

Among the problems considered by the Council were the investigation of orthopedic appliances, shoes and posture equipment, the consideration of radium and radon compounds, the problem of a seal of acceptance, and the investigation of short wave machines.

When considering short wave machines submitted to the Council for investigation, it was found that several machines would heat the deep lying tissues as well as conventional diathermy only if cuff electrodes were used and that the pad electrodes were not as efficient. Therefore it was thought best to require that the manufacturer of these machines (accepted solely on the basis of their performance with cuff electrodes) furnish cuff electrodes as standard equipment, and the manufacturers have expressed their willingness to comply. Several manufacturers furnish air-spaced electrodes with their machines, but so far no manufacturer has submitted conclusive evidence that these electrodes are efficacious.

1. Doyle, J. B.: Am. J. M. Sc. 185:484 (April) 1933.

In the investigation of spectacle lenses and ophthalmologic devices, the Council has been assisted by the Committee on Standardization and Drugs of the Section on Ophthalmology of the American Medical Association, and a report of the work was submitted by that committee.

It was reported that the revised, second edition of the Handbook of Physical Therapy will be printed in a short time, and that the pamphlet Apparatus Accepted will be brought to date later.

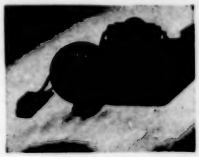
ACOUSTICON ACCEPTABLE

Manufacturer: Dictograph Products Company, Inc., New York.

The manufacturer states that the Acousticon is "an electrical device suitable for use by an individual whose hearing efficiency has been lowered appreciably. It constitutes a method of reinforcing, by electrical amplification, sound energy which is normally too weak to permit audition."

It is made in such a form that it can be carried on the person, and it is adjustable to the momentary needs of the user. Its source of electrical energy is dry cell batteries, enclosed in a sealed container.

Fundamentally, the instrument consists of a transmitter constructed not unlike a telephone transmitter, so that it responds to very weak sounds, reproducing them with reinforcement in certain tone ranges. Each model transmitter has a maximum reinforcement in different tone ranges. This microphone is connected by light electrical cordage to the battery and also to a receiver. Two fundamental types of receivers are supplied, the conventional air conduction and bone conduction. The air conduction receivers are made in two sizes, regular and midget, the latter being fitted with a molded insert which fits the recess of the external ear, projecting slightly into the canal. These molded pieces are fastened to the receiver with a snap connector, making easy removal for cleaning possible.



Acousticon.

In some models of the Acousticon, an amplifying device is used between the microphone and the receiver which intensifies the electrical impulses generated by the microphone, delivering to the receiver a substantially increased electrical signal.

The volume response characteristic for tones throughout the range of speech frequencies is different in each instrument model. This characteristic is determined almost entirely by the transmitter and ear piece combination and can be adjusted by such combination to suit the requirements for satisfactory audition by various individuals. Instrument combinations provide different degrees of amplification in the essential portions of the tone range.

All metal on the exterior of the instrument is suitably japanned or finished to eliminate any effect on the skin of the user, and all nonmetallic parts are of molded bakelite, rubber and silk.

Hearing aids are usually of considerable aid in cases of middle ear or conduction apparatus impairment. However, when there is marked impairment of the auditory nerve or perception apparatus, the assistance derived varies according to the individual condition and in extreme cases no benefit is gained.

The unit was tested under actual conditions by an investigator selected by the Council and was found to be generally satisfactory.

The special batteries used with this unit are distributed solely by the firm. The Council feels that the manufacturer would serve the hard of hearing better by adopting this unit to standard flashlight batteries, which could be accomplished by supplying a case to hold standard flashlight cells, for it believes it is more important to be able to replace the batteries readily and cheaply than to have special batteries giving slightly longer service which are not often quickly obtainable. Furthermore, in the case of special hearing-aid batteries, the Council feels that

the battery terminals should be standardized so that a battery, no matter where purchased, will fit all makes of hearing aids.

When these devices are prescribed, in the opinion of the Council, the Company should permit the patient to try them and be certain that they will fit his specific type of deafness under the particular circumstances in which he is most desirous of aid.

In view of the results of the investigation of this unit, the Council voted to include the Acousticon in its list of accepted devices.

UNIVERSAL BOVIE UNIT ACCEPTABLE

Manufacturer: The Liebel-Flarsheim Company, Cincinnati.

This unit is designed for electrosurgery and for medical diathermy. It is a spark gap type and is equipped with a selector switch, multiple connections for operating instruments, and sterilizable control handles. Its shipping weight is: unit, 111 pounds; subcabinet, 69 pounds. This unit is claimed to be ground free and shock proof. All currents pass through a special filter circuit, designed to eliminate the possibility of faradic or other shocking currents being transmitted to patient or operator. Its frequency is approximately 1,000,000 cycles per second (wavelength 300 meters). The power required to operate the unit at full load is about 390 watts. Figure 2 is a diagram of the circuit.

Fig. 1.—Universal Bovie Unit.

The manufacturer submitted evidence pertaining to the electrical and physical characteristics of the unit. The data indicated that the temperature rises of the transformer and spark gap after a run at full load for one hour were within the limits adopted by the Council. The Council's investigator reported that the unit was well made and that good material appeared to have been used in its manufacture.

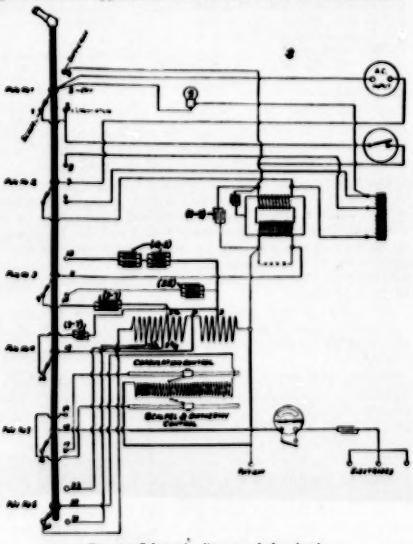


Fig. 2.—Schematic diagram of the circuit.

The performance of the apparatus was satisfactory when used for seven months in a clinic acceptable to the Council.

In view of the favorable report of the investigator, the Council on Physical Therapy voted to include the Universal Bovie Unit in its list of accepted devices.

EDMANDS ELECTRIC BAKER ACCEPTABLE

Manufacturer: Walter S. Edmands, 135 Columbus Avenue, Boston.

This heating unit is a useful and simple method for applying heat therapeutically to the body.

It consists of a number of incandescent lamps so wired and controlled as to produce three different degrees of heat. The lamps are spread under two curved aluminum reflectors, which are hinged together. The device may be adjusted so that it may fit around an arm or a leg, and the larger sizes will fit around a back. From six to twenty-four 60 watt lamps operate on either alternating or direct current. The shipping weight varies, according to size, from 10½ to 50 pounds.

Edmands Electric Baker.

One model of the Edmands Electric Baker was tried out in an acceptable clinic and found to be satisfactory for the application of local heat to the extremities. The device seems well suited for the maintenance of luminous and heat radiation of maximum tolerance around curved body surfaces, such as an arm or a leg.

In view of the favorable report, the Council on Physical Therapy voted to include the Edmands Electric Baker in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized publication of the following statement and report.

Paul Nicholas Leech, Secretary.

THE NEW ERGOT ALKALOID "ERGONOVINE"

During the past year, communications from four laboratories have been published reporting the isolation of a new oxytocic alkaloid from ergot. Until recently there has been doubt as to whether or not the principles reported by these laboratories were identical (termed "Ergotocin" by Kharasch, "Ergometrine" by Dudley and Moir, "Ergobasine" by Stoll, and "Ergostetrine" by Thompson). In a jointly signed statement (*Science*, February 28) Kharasch, King (acting for Dudley), Stoll and Thompson say there is "no doubt that the alkaloid obtained in the four different laboratories was the same substance. . . ."

It is necessary, therefore, that a suitable *nonproprietary* name which is *not therapeutically suggestive* be adopted for the new alkaloid. Not one of the several names that have been proposed by the discoverers complies with these requirements. The Council on Pharmacy and Chemistry of the American Medical Association, in session March 14, therefore determined to adopt the new, nonproprietary, name "Ergonovine" (ergo-nov-ine). The Council concedes to the discoverer of a product the right to the use of a proprietary name. It cannot, however, accept more than one proprietary name because of the confusion to which such practice gives rise. In the present case several different names have been proposed. It seems impossible to establish undisputed priority. The Council has decided therefore that it would recognize no proprietary name.

AMPOULE CALCIUM CHLORIDE 10% (LAKESIDE LABORATORIES, INC.) OMITTED FROM N. N. R.

In 1929 the Council placed Ampoule Calcium Chloride 10% (Lakeside Laboratories, Inc.) on the list of "Exempted Medicinal Articles" as being a pharmacopeial article marketed under a descriptive, nonproprietary name with well established therapeutic claims. In 1932 the name of this list was changed to "List of Articles and Brands Accepted By the Council But Not

Described in N. N. R." The product was reaccepted for inclusion in this list in 1933.

The second period of acceptance expired with the close of 1935 and, in accordance with its usual custom, the Council considered the eligibility of this product for continued recognition. In view of the fact that a less irritant calcium preparation such as calcium gluconate is now available, it was questioned whether the Council should continue recognition of so concentrated a solution of the admittedly irritant and, in the hands of the unskilful, possibly dangerous calcium chloride for intravenous use.

After due consideration the Council voted to omit Ampoule Calcium Chloride 10% (Lakeside Laboratories, Inc.) from the List of Articles and Brands Accepted By the Council But Not Described in N. N. R.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

ADVERTISING LEAFLET "MEL-O-TOSE NO. 1 WHAT IS IT? AND WHAT IS IT GOOD FOR?"

Sponsor.—Food Concentrates, Inc., New York.

Advertising leaflet for distribution to physicians containing analysis of Mel-O-Tose No. 1 and formulas for Mel-O-Tose Nos. 2, 3 and 4, and discussing nutritional and therapeutic values of dried ripe banana.

SOLITAIRE BRAND GRAPE JUICE

Distributor.—The Morey Mercantile Company, Denver.

Manufacturer.—Church Grape Juice Company, Kennewick, Wash.

Description.—Bottled, processed Concord grape juice, the same as Church's Concord Grape Juice (THE JOURNAL, Aug. 10, 1935, p. 437).

ADVERTISING BOOKLET FOR OCEAN CLEAR LOBSTERS

Illustrated booklet prepared by S. A. Conover Company, Boston, advertising agency, for the Consolidated Lobster Company, Gloucester, Mass., descriptive of conditions under which Ocean Clear Live Lobsters are caught, stored and shipped. Contains brief statement of the nutritive value of lobsters, directions for handling live lobsters and recipes for lobster dishes.

PEARLS OF WHEAT

Manufacturer.—Albers Brothers Milling Company, Seattle.

Description.—Wheat flour middlings or farina containing from 1.5 to 2 per cent of wheat germ.

Manufacture.—Wheat flour middlings containing from 1.5 to 2 per cent of wheat germ is bolted, heated to destroy any insect infestation and packaged.

Analysis (submitted by manufacturer).

	per cent
Moisture	9.0
Ash	0.5
Fat (ether extraction method)	1.3
Protein (N × 5.7)	8.2
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	80.6
Wheat germ content (germ picked out by hand)	1.5 to 2

Calories.—3.7 per gram; 105 per ounce.

Claims of Manufacturer.—A breakfast cereal. For infant feeding under the direction of a physician.

CARNATION YEAR BOOK OF MENUS AND RECIPES

Sponsor.—Carnation Company, Milwaukee.

Description.—Advertising booklet prepared by the Erwin, Wasey and Company advertising agency. A recipe book containing brief statements of food value of Carnation Milk and special advantages for use in infant feeding. The menus and recipes are arranged with reference to foods available at different seasons of the year.

ABSOPURE BRAND CALIFORNIA ORANGE JUICE

Manufacturer.—Absopure Fruit Products, Inc., Anaheim, Calif.

Description.—Canned, flash-pasteurized California Valencia orange juice practically equivalent to fresh orange juice in vitamin C content.

Manufacture.—Tree ripened Valencia oranges are washed, inspected for removal of inferior or defective fruit, and automatically halved and reamed. The juice is screened to remove seeds and coarse pulp, passed through a "finisher" to remove everything but the finest pulp, flash-pasteurized at 71 C. for from two to three minutes, filled hot into enamel-lined cans, sealed, and heat processed for from three to five minutes. The trees are not sprayed with arsenical sprays.

Analysis (submitted by manufacturer).—

	per cent
Moisture	87.0
Total solids	13.0
Ash	0.5
Fat (ether extract)	0.1
Protein (N × 6.25)	1.0
Reducing sugars as invert sugar	5.9
Sucrose	3.1
Crude fiber	0.03
Carbohydrates other than crude fiber (by difference)	10.3
Titratable acidity as citric acid	1.1

Calories.—0.5 per gram; 14 per ounce.

Vitamins.—Vitamin C—Chemical titration shows the canned product to be practically equivalent in cevitamic acid (ascorbic acid) to fresh juice.

Claims of Manufacturer.—Practically equivalent to fresh orange juice in vitamin C content. For all dietary and table uses.

AMERICAN LADY BRAND APPLE SAUCE TOPMOST BRAND APPLE SAUCE

Distributor.—General Grocer Company, St. Louis.

Packer.—Lyndonville Canning Company, Inc., Lyndonville, N. Y.

Description.—Canned apple sauce prepared from peeled and cored apples with added sucrose. The same as VB (Visscher Brothers) Old Fashioned Apple Sauce (THE JOURNAL, Aug. 6, 1932, p. 476).

ALLSWEET BRAND OLEOMARGARINE

(CONTAINS 1/10 OF 1% OF BENZOATE OF SODA)

Manufacturer.—Swift & Company, Chicago.

Description.—Margarine prepared from oleo oil, skim milk, neutral lard, peanut or cottonseed oil, salt and sodium benzoate 0.1 per cent; or hydrogenated cottonseed oil, skim milk, cottonseed oil, salt, oleo oil and sodium benzoate 0.1 per cent; or hydrogenated cottonseed oil, skim milk, cottonseed oil, salt and sodium benzoate 0.1 per cent.

Manufacture.—The fats and oils are melted and churned with pasteurized cultured skim milk. The resulting emulsion is solidified by chilling, allowed to stand for sixteen hours at 21 C. for the development of flavor; salt is worked in and excess moisture removed. The margarine is either packed in tubs or molded into blocks and automatically wrapped and packed in cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.0-15.0
Sodium chloride	3.0- 3.5
Fat (ether extract)	80.0-82.8
Protein (N × 6.25)	0.6- 0.7
Lactose	0.6- 0.8

Calories.—From 7.2 to 7.4 per gram; from 204 to 210 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 21, 1936

ERYSIPELAS

In a survey of the hospital records of 1,400 patients with erysipelas, Keefer and Spink [1] found the general mortality to be 16.4 ± 3.6 per cent. The mortality varied from year to year between 9.3 and 21 per cent. When the records were studied for factors that might account for the yearly fluctuations, it was found that the age of the patient, the presence of debilitating diseases and the occurrence of bacteremia were important. Thus the death rate is exceedingly high during the first two years of life; after that period the mortality is low until after the fifth decade, when there is a rapid increase. Almost any debilitating disease, it seemed, may be an important contributing factor in erysipelas. In a series of thirty patients recently studied, all of whom recovered, bacteremia was observed only once. In another group of thirty-nine fatal cases, bacteremia was present in thirty-one before death. The yearly variation in mortality could therefore be explained for the most part on the basis of the variation in these three factors.

As a part of an investigation of the various serologic reactions that occur during and after hemolytic streptococcus infections, Spink and Keefer [2] studied thirty patients with erysipelas. They investigated the antistreptolysins (antihemolysins), antifibrinolysin and streptococcidal power of the whole defibrinated blood. In addition, the complement of the blood serum was titrated; agglutination reactions against the organism derived from the patient and the skin reactions to "Dick" toxin and streptococcus nucleoprotein were investigated. All the patients were studied while they were under observation in the Boston City Hospital. After the illness had subsided and after discharge from the hospital, the patients were followed for periods of from one to eight months. B. hemolytic streptococci were isolated from all the patients studied. When it was not possible to obtain the organisms directly from the lesion, they could be obtained from the nasal secretions.

The antistreptolysin titer of the blood serum was determined by the method of Todd. The titer was found increased during the course of the disease and frequently remained above the original titer for periods of from forty days to six months. The highest titer was usually reached within the first twenty days after the onset of the illness. The method of Tillett and Garner was used in testing for antifibrinolysin. Twenty-five of the thirty patients developed maximum resistance to fibrinolysin within five to fourteen days of the illness. Once the resistance appeared, it persisted for periods varying from eight to 150 days. While there was no precise correlation between the appearance of maximum resistance and recovery, Spink and Keefer considered this reaction a response on the part of the host to streptococcic infection. The streptococcidal action was studied in the whole defibrinated blood by the method of Todd. During the course of the disease, the streptococcidal power may be increased or remain stationary. Increases in killing power, however, could not be correlated with recovery. The titer of the complement of the patient's blood serum was determined at different times during the course of the disease. This was done by adding different amounts of the patient's blood serum to 0.5 cc. of sensitized sheep cells and placing the mixture in a water bath at 37 C. for an hour. The smallest amount of serum that was required to effect complete hemolysis of 0.5 cc. of sheep cells was taken as the amount of complement present. The results of these tests varied widely. In general, however, there was an adequate amount of complement present for phagocytosis. Also skin tests were performed. Only one of the thirty patients reacted positively to Dick toxin, although twenty-four showed positive reactions to 0.1 mg. of the nucleoprotein of hemolytic streptococcus. Three patients developed agglutinins against their own organisms in titers varying from 1:40 to 1:80. Two of the three patients had suppurative complications.

In view of the multiple serologic reactions demonstrable in patients with hemolytic streptococcus infection it is difficult to decide which responses are the more important in bringing about recovery. Recovery probably results from a summation of a variety of responses that are capable of keeping the infectious process localized and destroying or limiting the growth of the organisms in the tissues. Of these reactions, according to Spink and Keefer, the presence of antibodies that aid in the phagocytosis and destruction of the organism seem to be of the greatest importance. The complex nature of the problem of immunity and recovery in a streptococcic infection such as erysipelas is well illustrated by these contributions.

1. Keefer, C. S., and Spink, W. W.: Studies of Hemolytic Streptococcal Infection: I. Factors Influencing the Outcome of Erysipelas, J. Clin. Investigation **15**: 17 (Jan.) 1936.
2. Spink, W. W., and Keefer, C. S.: Studies of Hemolytic Streptococcal Infection: II. The Serologic Reactions of the Blood During Erysipelas, J. Clin. Investigation **15**: 21 (Jan.) 1936.

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PSYCHOGENIC FACTOR IN ASTHMA

There are certain cases of asthma, Strauss [1] says, which for various reasons (e. g., the mode and age of onset or the inability to demonstrate sensitivity to any special allergens) appear to be predominantly psychogenic in the sense of "complex determined." With this view scarcely any one will disagree, especially when qualified by repeated emphasis of the fact that one cannot talk correctly about "true asthma" and "psychogenic asthma," implying thereby that psychic mechanisms play no part in one and are solely causal in the other. An attempt to evaluate the psychogenic factor has, however, been begun at Guy's Hospital and is the subject of two recent preliminary reports.

In the report by Rogerson [2] and his co-workers it was shown that, when patients with this symptom complex and their environment were considered from the psychiatric point of view a number of interesting facts emerged which showed that the psychologic quality of the environment was just as important to these children as its physical components. The patients referred for psychologic investigation were predominantly children. Some were asthmatic without skin symptoms, some showed both asthma and prurigo-eczema, while in one or two cases the skin condition was the point of emphasis.

The intelligence of the group was above the average not only for the hospital class but for the general population. The position in the family was striking. Of the group of twenty-three children seven were the only child, six were the eldest child, while four were the first boy in the family. Partly on this account and partly because of other factors, a large proportion of the children had to contend with a difficult environment. No less than seventeen of the children were fussed and overprotected by their parents to a pathologic degree. This abnormality was so great that one might feel that if these children had not been brought to the hospital with asthma or prurigo they might easily have been referred on account of the nervousness engendered in them by their situation. By comparison, in only two of the cases was the difficulty primarily one of jealousy of a younger child, normally another common cause for nervousness in child guidance practice.

The most interesting feature of these cases taken as a group was their uniformity of behavior. It was both overanxious and insecure and was shown by the majority of the children. This was often reflected in the personality of the parents, which in many cases resembled that of the children in being overanxious and insecure and which might therefore be expected to arouse a similar response in the children.

Strauss feels that the children fall into two groups: (1) children who have been very much "wanted" by their parents (only children, the first boy to be born in a family of girls, or vice versa and so on), and (2) "unwanted" children whose parents are overcompensating for their secret (possibly unconscious) emotional disposition to the child by fussiness and spoiling. He then considers two possible "causes" of asthma: that in which the asthmatic attack is to be regarded as crudely purposive in character and that in which the asthmatic attack is infantile-libidinally determined in the strict freudian sense. The following questions have therefore to be decided: 1. "Is asthma crudely a purposive hysteria, in the sense of its being an attempt to solve a current conflict by neurotic means? 2. Is asthma in a more subtle sense complex or libidinally determined? 3. Is asthma to be regarded as representing a disturbance at a 'psychoid' rather than a psychic level? 4. Is an asthmatic attack to be regarded primarily as the perverted end result of a chain of conditioned reflexes? 5. Do distorted, emotionally colored fantasies of respiratory functions combine with the allergic diathesis to produce asthma?" Apparently the answers to these five questions are most likely to be forthcoming if young asthmatic children are selected for research purposes, and the best method of investigation centers around observation of their play. It is probably not only in play, however, that a child can realize its preconscious and subconscious mental life and psychoid processes in a manner that may become clear to itself and to an unbiased but trained observer. Further investigation of the asthma problem seems to require a "play technic" that takes stock of extremist points of view.

The fascinating and important studies begun in the work reported in these two papers should, at the least, lead to much better understanding of some factors in the asthma-prurigo syndrome, which are so frequently found baffling.

1. Strauss, E. B.: The Psychogenic Factor in Asthma, Guy's Hosp. Rep. 85: 309 (July) 1935.
2. Rogerson, C. H.; Hardcastle, D. H., and Duguid, K.: A Psychologic Approach to the Problem of Asthma and the Asthma-Eczema-Prurigo Syndrome, Guy's Hosp. Rep. 85: 289 (July) 1935.

NUTRITIONAL SIGNIFICANCE OF ZINC

More than twenty years ago, in one of their classic papers on the relation of growth to the chemical constituents of the diet, Osborne and Mendel [1] wrote: "The animal cells need for their activities not only energy but also suitable constructive materials to replace the wear and tear therein. Furthermore, the cells are concerned in the elaboration of a great diversity of complex and little understood substances such as enzymes, products of internal secretion, etc., which unquestionably play an indispensable rôle in life and may require either special antecedent products for their construction, chemical activators of some sort, or minute quantities of readily overlooked rarer elements and compounds." These pioneer studies indicated that much better growth was obtained in the experimental animals when traces of iodine, manganese, fluorine and aluminum were added to the artificial salt mixture originally made to resemble the ash content of milk.

1. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. 15: 311, 1913.

The importance of these investigations was not immediately recognized but the striking demonstration a short time later of the efficacy of small quantities of iodine in the prevention and cure of endemic goiter served to emphasize the need for adequate knowledge regarding the indispensability or even the minimum requirement of any of the inorganic constituents of the dietary. Investigators of the past fifteen years have demonstrated the undisputed importance of mineral elements in the diet. Copper, iron, magnesium, calcium and phosphorus are among the minerals that have been established as being of definite nutritional significance.

The efforts to secure undisputed evidence for the nutritional rôle of any particular element are attended with much experimental difficulty. This is particularly true when the mineral in question may be required by the animal in only small amounts; the experimental approach, therefore, involves the removal from the diet of every possible trace of the element to be studied. This technic has proved extremely difficult and laborious in some instances, and development of definite knowledge of the possible rôle of many of the elements in nutrition has awaited the refinement of laboratory procedures. This fact is aptly illustrated by the available information regarding zinc in nutrition.

In 1927 Hubbell and Mendel [2] reported a careful study of the zinc content of some common foods, of the effect of the metal on the growth of white mice, and of the relation of the zinc content of mice to their diet. These investigations definitely supported earlier results which demonstrated that zinc is commonly present in small amounts in foods of both plant and animal origin. A zinc-low ration was prepared which permitted the ingestion of only 0.005 mg. of zinc by each animal daily. The growth of mice on this diet was slightly retarded when compared to that of control animals. More striking evidence for a possible significant rôle of zinc in nutrition was obtained by the favorable effects exerted by small amounts of zinc sulfate added to the zinc-low ration. The results were not definitely conclusive but there appeared to be a slight stimulation in growth evidenced in animals receiving the zinc supplements. It seemed not unlikely that there is some variation in growth with varying amounts of zinc and that the metal is not merely an accidental factor in the nutrition of the mouse. Adequate confirmation of this suggestion is now available from two laboratories.

Investigators at the University of Wisconsin [3] have made careful studies of the indispensability of zinc in the nutrition of the rat. By special refinements in technic it was possible to reduce the zinc intake to a level at which the lack of this element was manifested by a definite retardation in growth and a regular interference with the development of a normal coat of hair. Both these unfavorable conditions could be alleviated by the addition of small amounts of a zinc salt to the purified ration. The supplement inaugurated a resumption of normal growth rate and a restoration of the thin wooly hair coat to normal. This demonstrated importance of zinc in nutrition is amply confirmed in another species by the studies of Bertrand and Bhattacherjee [4] in Paris. Working with a ration slightly lower in zinc content than that of Hubbell and Mendel, the French investigators have demonstrated that mice placed on a synthetic diet containing less than 0.5 mg. of zinc per kilogram died in from fourteen to twenty-three days. Control litter mates ingesting a similar diet supplemented to the extent of 20 parts per million of zinc lived from fifty-seven to seventy-four days. The preponderance of evidence, therefore, indicates that zinc is an essential element in the nutrition of the rat and the mouse. Although experiments have not been conducted with other animals, it seems possible that zinc plays an important part in the nutrition of all animals. It is hardly necessary to point out that the difficulties encountered in preparing a zinc-free ration suggest that most natural diets contain sufficient amounts of this element. However, it is only by a virtually complete elimination of substances normally necessary in minute amounts in the diet that correct evaluation of their function can be obtained. Although the manner in which zinc affects the body is still unknown, the establishment of its essential nature stimulates investigations designed to determine the manner in which the element may function. The interesting observation of Scott [5] that his highly purified crystalline insulin contains traces of zinc firmly bound in the hormone molecule are suggestive at this time, even though a definite interpretation cannot yet be made.

2. Hubbell, R. B., and Mendel, L. B.: J. Biol. Chem. 75: 567 (Nov.) 1927.

3. Todd, W. R.; Elvehjem, C. A., and Hart, E. B.: Am. J. Physiol. 107: 146 (Jan.) 1934. Stirn, F. E.; Elvehjem, C. A., and Hart, E. B.: J. Biol. Chem. 109: 347 (April) 1935.

4. Bertrand, Gabriel, and Bhattacherjee, R. C.: Compt. rend. Acad. d. sc. 198: 1823, 1934; Bull. Soc. scient. d'hyg. aliment. 23: 369, 1935.

5. Scott, D. E.: Biochem. J. 28: 1392 (No. 4) 1934.

Current Comment

"ERGONOVINE"

Last year the isolation of a new alkaloid from ergot was reported within a relatively short period from four different laboratories, two in the United States, one in England and one in Switzerland. The new substance was found in each case to be different in its properties from the previously known alkaloids of ergot; its oxytocic effects were much more prompt and more lasting than those of ergotoxine or ergotamine and the required dosage was smaller. Some discrepancies in the reported physical and chemical properties of the material isolated by the different investigators led to doubt as to the identity of the four products; four names were proposed, ergometrine (Dudley and Moir), ergotocin (Kharasch and Legault), ergobasine (Stoll and Burckhardt) and ergostetrine (Thompson). Owing to the confusion entailed by the doubt as to the identity of the four products so designated, workers in the four laboratories commendably agreed to exchange

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specimens and to compare the various products. Kharasch, King (acting for the late Dr. Dudley), Stoll and Thompson [1] have now reported that their "comparisons of the melting points and mixed melting points of the four alkaloids and of certain of their salts, and of their optical activities in different solvents in cases where sufficient material was available, leave [them] in no doubt that the material obtained in the four different laboratories was the same substance, and that the four names given to it are synonyms." Elsewhere in this issue (page 1008) the Council on Pharmacy and Chemistry reports the adoption at its annual session on March 14 of a new nonproprietary name for this alkaloid, "ergonovine." This new term was chosen instead of one of those already proposed because of the difficulty of determining priority and because of possible conflict of the other names with the policy of the Council governing nomenclature. The agreement among the investigators concerned as to the identity of the alkaloid and the adoption of a single name to replace the four previously in use (and others employed in addition by commercial firms) should now prevent further confusion.

Association News

THE KANSAS CITY SESSION

Distinguished Foreign Guests

Among the distinguished physicians from other countries who will attend the annual session of the American Medical Association to be held in Kansas City, Mo., are Lord Horder of Ashford, London, England; Dr. Afranio do Amaral of Institute Butantan, São Paulo, Brazil, and Dr. Francisco Miranda, Mexico City, Mexico.

Lord Horder and Dr. Amaral will take part in the program of the General Scientific Meetings on Tuesday, May 12. Lord Horder and Dr. Miranda will each present a paper before the Section on Practice of Medicine.

RADIO BROADCASTS

The American Medical Association broadcasts over WEAF, the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

Red Network.—The stations on the Red network of the National Broadcasting Company are WEAF, WEEI, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

Pacific Network.—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOMO, KHQ, KFSD, KTAR.

Network programs are broadcast locally or omitted at the discretion of the local station. The lists indicate stations to which programs are available.

The next three programs are as follows:

March 24. Hay Fever and Asthma, Morris Fishbein, M.D.
March 31. Let Your Doctor Decide, W. W. Bauer, M.D.
April 7. Middle Age, R. G. Leland, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. William D. Burkhalter, Nashville, Tenn., was recently appointed health officer for the newly organized health department of Coosa County, with headquarters at Rockford.——Dr. Robert E. Harper, Moulton, has been named health officer of Colbert County, succeeding Dr. George W. Warwick, Birmingham.

ARKANSAS

Society News.—The Mississippi County Medical Society was addressed, February 4, by Memphis physicians: Clement H. Marshall on pruritus; Matthew W. Searight, menstruation; Shields Abernathy, cancer of the breast, and Dr. Joseph E. Beasley, Blytheville, management of a ruptured appendix.——At a meeting of the Sebastian County Medical Society, February 11, Drs. Clarence B. Billingsley and Ralph E. Weddington, Fort Smith, discussed "Puerperal Sepsis: Prognosis and Treatment."——The Benton County Medical Society was addressed at Bentonville, February 13, by Drs. William A. Moore and Clyde L. McNeil, both of Rogers, on undulant fever and syphilis, respectively.——Dr. Henry B. Hull, Mammoth Spring, discussed pneumonia before the Lawrence County Medical Society at Imboden, February 11.

CALIFORNIA

Personal.—Dr. Alexis Carrel of the Rockefeller Institute for Medical Research, New York, delivered the sixty-eighth charter day address on the Los Angeles campus of the University of California, March 20; Dr. Carrel was recently appointed Hitchcock professor at the University of California in Berkeley for the spring semester.——Dr. Robert A. Peers, Colfax, president of the California Medical Association, was made an honorary member of the Stanislaus County Medical Society at a recent meeting in Modesto, in honor of his sixtieth birthday.——Dr. Edwin S. Bennett, Olive View, has been appointed superintendent of Olive View Sanatorium, succeeding the late Dr. William H. Bucher.

San Francisco's Health.—Heart disease, the leading cause of death in San Francisco, was responsible in 1935 for 2,491 deaths, giving the highest rate on record, 359 per hundred thousand of population. A rate of 172.87 per hundred thousand of population was noted for cancer. The general mortality rate for the city was 12.34, and the infant mortality rate 35 per thousand live births. The birth rate was 10.28 per thousand of population and the maternal death rate was 4.6 per thousand of all births. Pulmonary tuberculosis showed a rate of 58.58. The highest rate ever recorded for diabetes mellitus was made, 29.72 per hundred thousand of population. There were 123 deaths from automobile accidents, giving a rate of 17.74. Four deaths were reported for diphtheria, as compared with one death in 1934. No cases of smallpox were reported. A death rate of 6.2 was recorded for influenza.

COLORADO

Society News.—At a meeting of the Otero County Medical Society in La Junta, February 13, Drs. James B. Walton and Daniel R. Higbee, Denver, spoke on "Diseases of the New-Born" and "Kidney Infections" respectively.——Dr. Wilton A. Day, Delta, discussed vitamins before the Delta County Medical Society in Delta, February 28.——A symposium on cancer of the female genital tract was presented before the Pueblo County Medical Society, March 3, by Drs. Gerrit Heusinkveld, Kenneth D. A. Allen and George Zur Williams, all of Denver.——The Medical Society of the City and County of Denver was addressed, March 3, by Drs. Arthur J. Markley on "Jonathan Hutchinson—The General Specialist" and Edward Jackson, "Pioneers in Ophthalmology."

1. Kharasch, M. S.; King, H.; Stoll, A., and Thompson, M. R.: The New Ergot Alkaloid, Science 83:206 (Feb.) 1936.

DISTRICT OF COLUMBIA

University News.—Dr. Esmond R. Long, director of the Henry Phipps Institute, Philadelphia, gave the fifth lecture in the Smith-Reed-Russell series at the George Washington University School of Medicine, February 18; his subject was "Types of Pulmonary Tuberculosis in Relation to Spread of the Disease." Philip Bard, Ph.D., Baltimore, gave the fourth lecture in the series, January 16, on "Neural Bases of Certain Forms of Emotional Expression."

Personal.—John C. Merriam, Ph.D., president of the Carnegie Institution of Washington, was presented with the American Institute's gold medal, February 6, for "his discoveries in paleontology, his effective promotion of research and his recognition of the place of science in human affairs."——Dr. Frank Leech was honored at luncheon, January 14, in observance of his sixty-fifth birthday. A book of testimonials was presented to Dr. Leech, signed by about eighty-two friends and associates present at the luncheon.

Society News.—At a meeting of the Washington Society of Pathologists, January 4, papers were presented by Drs. Laszlo Detre on "Growth-Temperature and Antigenic Constitution of B. Typhosus" and Joseph F. Siler, "Recent Investigation of Typhoid Vaccine at the Army Medical School."——Speakers before the Washington chapter of the Pan American Medical Association at its meeting January 26 included Drs. John J. Moorhead, New York, and William Wayne Babcock, Philadelphia, on "Trends in Traumatic Surgery" and "Diagnosis and Treatment of Diseases of the Colon" respectively.——Dr. Mervin W. Glover addressed the Louis Mackall Society recently on "Treatment of Epidemic Meningitis" and Dr. Harry F. Dowling, "Postoperative Pneumonia: Cause, Prevention and Treatment."

Medical Bills in Congress.—H. R. 11692, introduced (by request) by Representative Norton, New Jersey, proposes to establish a Commission on Mental Health to examine alleged insane persons and to make reports and recommendations to the court concerning the treatment, commitment and payment of the expense of support and maintenance of insane persons. The House Committee on the District of Columbia has voted to report the bill with recommendation that it pass. H. R. 11695, introduced by Representative Brewster, Maine, and S. 4195, introduced by Senator White, Maine, propose to direct the Commission on Licensure to Practice the Healing Art in the District of Columbia to issue a license to practice the healing art to Dr. Ralph Charles Stuart. H. R. 11717 introduced by Representative Lemke, North Dakota, proposes that no form of vaccination or inoculation shall hereafter be made a condition precedent, in the District of Columbia, for the admission to any public or private school or college, of any person, or for the exercise of any right, the performance of any duty, or the enjoyment of any privilege by any person.

ILLINOIS

Society News.—Dr. Ernest A. Pribram, Chicago, addressed the Will-Grundy County Medical Society, March 11, on "Blood Transfusion."——At a meeting of the Union County Medical Society, March 12, Dr. Edward J. Stieglitz, Chicago, discussed "Nephritis—Functional Considerations in Treatment."——Dr. Nathaniel G. Alcock, Iowa City, addressed the Peoria City Medical Society, March 3, on "Malignancy of the Urinary Tract."

Chicago

Personal.—Albert L. Raymond, Ph.D., of the Rockefeller Institute for Medical Research, New York, has been appointed director of the research laboratories of G. D. Searle and Company, Chicago, pharmaceutical manufacturers.——Samuel R. Lewis, Chicago, heating and ventilating engineer, addressed the Research Club of the University of Illinois College of Medicine at its 250th anniversary meeting on "How Air May Be Heated and Cooled," March 11.

Society News.—A symposium on cancer of the colon and rectum was presented before the Chicago Medical Society, March 11, by Drs. Leon Bloch, Vernon C. David and Charles B. Puestow. A symposium on arterial diseases of the extremities constituted the program, March 18, with Drs. Samuel Perlow, Frank V. Theis and Géza de Takáts as the speakers.——The Chicago Pathological Society was addressed, among others, March 9, by Noel Paul Hudson, Ph.D., Columbus, Ohio, and Enid A. Cook, A.B., of the department of bacteriology, University of Chicago, on "Relation of the Herpes Antiviral Power of the Blood to Sex, Pregnancy and Menstruation."——At a meeting of the Chicago Roentgen Society, March 12, speakers included Drs. Dallas B. Phemister on "Calcium Carbonate in Cholelithiasis."——The Chicago Tuberculosis Society was addressed, March 13, by Drs. Frederick Lieberthal on "Urinary Tuberculosis—Its Relation to the Tuberculosis Problem in General"; Thomas O. Nuzum, Janesville, Wis., "Intrathoracic Fluid," and Jay Arthur Myers, Minneapolis, "Tuberculosis Lesions in Medical Students and Nurses."——Among others, Dr. Henry W. Meyerding, Rochester, Minn., discussed "Dupuytren's Contracture" before the Chicago Orthopaedic Society, March 13. Dr. Roger Anderson, Seattle, discussed a paper presented by Dr. James J. Callahan on "Fractures of the Patella."

INDIANA

Personal.—Dr. Joseph S. Skobba, resident physician at the Fort Wayne State School since 1932, has been transferred to the Central State Hospital at Indianapolis; he has been succeeded at the Fort Wayne institution by Dr. Arsenius R. Episcopo, East Chicago.

Society News.—Dr. Aloysius James Larkin, Chicago, discussed common uses of radium before the St. Joseph County Medical Society in South Bend, March 4.——At a meeting of the Jasper-Newton County Medical Society in Rensselaer, February 27, Dr. Alexander A. Goldsmith, Chicago, spoke on gastrointestinal infection.——The Daviess-Martin Counties Medical Society heard Dr. Leonard A. Ensminger, Indianapolis, discuss fractures at its meeting in Washington, February 25.

Graduate Courses.—The fifth annual graduate meeting of the Indiana State Medical Association will be held at the Claypool Hotel and the Indiana University School of Medicine, Indianapolis, April 8-9. Both days will be given over to discussions of cardiovascular, renal and neoplastic diseases. The meeting will be held during the annual graduate course of Indiana University School of Medicine, April 6-11. The latter course will be devoted to clinics in the forenoon and didactic work in the afternoon.

IOWA

Examination in Basic Sciences.—The Iowa Board of Examiners in the Basic Sciences will conduct a written examination at the state capitol, Des Moines, April 14, at 9 a. m. Those wishing to take the examination must obtain an application blank from the secretary, fill it out and return it, together with the fee of $10, so as to reach the secretary, Edward A. Benbrook, V.M.D., Iowa State College, Ames, not later than Monday March 30.

KANSAS

Wichita Graduate Clinic Day.—The Sedgwick County Medical Society will hold its first annual graduate clinic in Wichita, April 7. The program will be an all day clinical meeting at the Allis Hotel, consisting of demonstrations of clinical and pathologic material presented by members of the society.

The Porter Lectures.—Dr. Jennings C. Litzenberg, professor of obstetrics and gynecology, University of Minnesota Medical School, Minneapolis, presented the sixth course of lectures under the Porter Lectureship in Medicine of the University of Kansas School of Medicine, March 17-18. The titles of the lectures were "The Pathology of Ectopic Pregnancy," "The Physician Who Became a God" and "Missed Abortion."

Society News.—A symposium on fractures was presented before the Sedgwick County Medical Society, February 18, by Drs. Earl J. Frost, Charles R. Rombold, Hervey R. Hodson, Arthur E. Bence, Earl L. Mills, Edwin D. Ebright and Alonzo P. Gearhart, all of Wichita. The society was addressed, March 17, by Drs. Vincent L. Scott on "Rheumatic Infections in Childhood" and Jacob F. Gsell, "Foreign Bodies of the Eye, Ear, Nose and Throat." Speakers at the March 3 meeting were Drs. John L. Kleinheksel and John G. Missildine on "Diabetes in Pregnancy" and "Diagnosis in Kidney Infection" respectively.——Dr. Warren H. Cole, St. Louis, addressed the Wyandotte County Medical Society, March 3, on "Causes of Failure in Gallbladder Surgery."

MARYLAND

The Thayer Lectures.—Philip E. Smith, Ph.D., professor of anatomy, Columbia University College of Physicians and Surgeons, New York, gave the William Sydney Thayer and Susan Read Thayer Lectures in Clinical Medicine, March 12-13, at Johns Hopkins Hospital, Baltimore. His lectures were entitled "The Influence of the Hypophysis on the Uterus and Menstruation" and "Relation of the Hypophysis and Ovaries to the Menopause."

University News.—Charles G. King, Ph.D., professor of chemistry, University of Pittsburgh, gave one of the De Lamar lectures in hygiene at Johns Hopkins University School of Hygiene and Public Health, March 10. His subject was "The

Prescorbutic State." The Society of Hygiene of the University was addressed, February 26, by Justin M. Andrews, Sc.D., and Harry F. White on "A Survey of Protozoa Parasitic in Wild Rats in Baltimore, with Special Reference to Endamoeba Histolytica," and Roscoe R. Hyde, Ph.D., Baltimore, "Immunity to the Virus of Infectious Myxomatosis."

MASSACHUSETTS

Dr. Zinsser Named Charles Wilder Professor.—Dr. Hans Zinsser, professor of bacteriology and immunology, Harvard Medical School, Boston, has been appointed Charles Wilder professor of bacteriology and immunology at the school. This is not a new professorship, but it has only recently been assigned to the department of bacteriology.

Physicians' Art Exhibit.—The Physicians' Art Society will hold its annual exhibition in the galleries of Doll and Richards, Boston, April 27-May 9. In addition to paintings, drawings and sculpture, other creative specimens of handicraft are eligible. Photographs will not be accepted. There is no limit to the number of subjects which can be sent by any one person, but a professional jury will select a limited number and supervise their hanging. Nothing will be accepted that has been shown at any of the previous exhibitions. All inquiries should be addressed to Mr. James F. Ballard, secretary of the society, at the Boston Medical Library.

Course in Bacteriology.—A summer course in general and sanitary bacteriology will be offered by the department of biology and public health, Massachusetts Institute of Technology, Cambridge, June 16-July 28. The course will consist of lectures, recitations, demonstrations, laboratory work and appropriate field trips. The course is designed for beginners in bacteriology and to appeal to public health nurses, health education workers, public health laboratory and hospital technicians, sanitary inspectors, water works operators, milk inspectors, milk analysts and students preparing for careers in biologic science, public health or medicine. All inquiries should be addressed to Prof. Murray P. Horwood, Ph.D., Massachusetts Institute of Technology.

MICHIGAN

Psychiatric Parole Clinic.—The opening of the psychiatric parole clinic recently established at Eloise Hospital, Eloise, will take place April 1, newspapers report. The clinic will sponsor the classification and examination of patients in county institutions and return the mildly affected to their homes. Constant supervision of these patients will be maintained through a follow-up system (THE JOURNAL, Dec. 14, 1935, p. 1993). A Detroit branch of the clinic will also be opened about April 1 in the juvenile court building, it was stated. Dr. Martin H. Hoffmann is in charge of the work.

Fellowships in Public Health Administration.—Dr. Morley B. Beckett, Lansing, formerly director of county health administration, state health department, has been appointed to the staff of the W. K. Kellogg Foundation to work out details for a fellowship system to enable graduate students in public health administration and kindred fields to obtain practical experience, it is reported. Two full time one year fellowships are now being planned, for which applicants must be graduates of recognized schools with special training in the public health field. Dr. Beckett has served with the health department of Cleveland, as assistant health commissioner of Saginaw, and health officer of Isabella County. He plans to devote six months to the development of these fellowships.

Annual Concert of Medical Society's Orchestra.—The symphony orchestra of the Wayne County Medical Society will give a joint concert with the glee club of the society at the Detroit Institute of Arts, March 30. The program is made up of eight selections by the orchestra and the glee club and two cello solos by Georges Miquelle, director of the orchestra. The Wayne County Medical Society Symphony Orchestra was established in January 1935. In April it made its first appearance, with twenty-eight members. Fifty musicians, some of whom are dentists, now make up the personnel. Officers are Drs. Frank M. MacKenzie, president; William P. Woodworth, vice president; Jacob Agins, secretary; Arthur E. Hammond, treasurer, and Raphael Altman, assistant conductor.

MISSISSIPPI

Bills Introduced.—S. 442 proposes to create a county medical association in each county and to deny to a physician not a member of such a county medical association the right to practice medicine in the state. The county medical association for each county would be in complete charge of all public health work in the county or area of its organization, and of all such public health work heretofore delegated to the state board of health. The state board of health would continue as a centralized directing agency for the distribution of educational matter concerning public health and would promulgate rules and regulations for the prevention and spread of contagious, infectious or epidemic diseases. It would be the duty of the several county medical associations to enforce those rules and regulations within their respective areas. H. 603 proposes to create a board of cosmetic therapy and to regulate the practice of cosmetic therapy or beauty culture. Such licentiates are to be permitted, among other things, to remove superfluous hair about the body of any person. H. 607 proposes that "all communications made to a physician or surgeon by a patient under his charge or by one seeking professional advice, are hereby declared to be privileged, and such physician or surgeon shall not be required to disclose the same in any legal proceeding, except at the instance of the patient, or in any case where the physical condition of the patient is voluntarily put in issue by the patient."

MISSOURI

Publicity and the Press.—Until such time as a policy and adequate working rules can be adopted, the president of the St. Louis Medical Society, under authority from the council, will handle any publicity or material for the press, according to the society's weekly bulletin. This decision was made recently when questions arose that required action by a committee on publicity. The further need for such a committee was emphasized by a policy recently adopted by Washington University School of Medicine, under which all news items emanating from the school and its affiliated hospitals are to be referred to a committee of the St. Louis Medical Society before publication in the lay press, the bulletin said.

St. Louis Clinics.—The annual spring conference of the St. Louis Clinics will be held for one week beginning April 27. Clinical demonstrations will be given daily, and Tuesday evening the regular meeting of the St. Louis Medical Society will be under the direction of the clinics. Demonstrations by members of the medical reserve of the seventh corps area will be given from 4 to 5 p. m. each day and on Monday and Wednesday evenings. St. Louis physicians will present the entire program, which will be strictly clinical, providing a general review and a discussion of newer methods employed in the diagnosis and treatment of all branches of medicine. Further information may be obtained from the secretary, St. Louis Clinics, 3839 Lindell Boulevard, St. Louis.

NEBRASKA

Society News.—The Omaha-Douglas County Medical Society, Omaha, had the following guest speakers, March 11: Drs. Frank E. Adair, New York, on "Carcinoma of the Breast"; Erwin R. Schmidt, Madison, Wis., "Therapeutic Use of Oxygen"; Robert H. Kennedy, New York, "Colles Fracture," and Alfred W. Adson, Rochester, Minn., "Trigeminal Neuralgia: Differential Diagnosis and Surgical Treatment."——Drs. Rex L. Murphy and Paul J. Connor, Denver, addressed the Scotts Bluff County Medical Society, February 13, on "Otitis Media, Mastoiditis and Sinus Diseases" and "Hypothyroidism" respectively.

NEW YORK

Milk-Borne Epidemic of Scarlet Fever.—An outbreak of about 200 cases of scarlet fever in Wellsville, a town of 6,000, in January was traced to raw milk or cream, *Health News* reports. Of 115 cases investigated, 103 were in households regularly supplied with raw milk or cream supplied by one dealer. On one of the farms was found a cow with mastitis. It was also found that two sons of the owner of this farm had had sore throats about the time the cow showed infection. From this cow a hemolytic streptococcus having the characteristics of the type usually associated with human infections was isolated. Five deaths had occurred up to the time of the report.

Bills Introduced.—A. 1719 proposes (1) to authorize the state department of health to promulgate requirements, specifications and tolerances for clinical thermometers and to designate by appropriate markings or seals such clinical thermometers as comply with its regulations and (2) to limit the sale of clinical thermometers in the state to thermometers approved by the department. A. 1720 proposes to make it unlawful to sell, or to possess for the purpose of selling, any clinical thermometer not conforming to certain requirements set out in the bill. A. 1731 proposes to require the board of regents of the University of the State of New York, prior to Jan. 1, 1937, to establish and appoint a state board of chiropractic examiners. This chiropractic board would establish rules and regulations

fixing the qualifications of applicants for licenses to practice chiropractic, the examination of such applicants, and the granting and issuing of licenses to practice chiropractic. The bill proposes to define chiropractic, in effect, as the adjustment of the human skeletal frame, according to the doctrine of chiropractic. Such practice is not to include the science of surgical operations, the use of instruments, or the prescribing or use of drugs or medicines, but x-rays may be used for the purpose of examination. S. 1431, to amend the pharmacy law, proposes that no manufacturer or wholesaler may sell any poisonous, deleterious or habit forming proprietary medicine except to the proprietor of a pharmacy, drug store or registered store or to persons authorized to make purchases for state institutions or public or private hospitals. S. 1443 proposes to regulate the conduct of clinical laboratories and to require such laboratories to be under the immediate supervision of a licensed clinical laboratory technologist or a person holding a valid and unrevoked license to practice medicine and surgery in the state. The bill proposes to define a clinical laboratory as "any place, establishment or institution or department whether or not it is termed or called a clinical laboratory or given any other designation of like import, organized for the practical application of one or more of the fundamental sciences, such as bacteriology, biochemistry, serology and parasitology and other allied subjects, by the use of specialized apparatus, equipment or methods for the purpose of furnishing regularly licensed practitioners of the healing arts or other person with the results of such laboratory examinations or tests or analysis of specimens submitted." S. 1522 and A. 1884, to amend the laws relating to the conduct of maternity hospitals, propose to require such hospitals in the city of New York to be licensed by the commissioner of hospitals of New York City. S. 1534 and A. 1793 propose to create a board of psychiatric examiners and to prescribe qualifications for qualified psychiatrists. S. 1559, to amend the workmen's compensation act, proposes to permit the annual expenditure from the vocational rehabilitation fund for five years of a sum not exceeding $50,000 to make studies and disseminate information on the subject of control and prevention of diseases caused by inhaling harmful dusts. A. 1797, to amend the workmen's compensation act, proposes to authorize compensation for total disability or death from silicosis or other dust diseases. It proposes that compensation shall not be payable for partial disability. The bill proposes to limit the medical treatment for an employee disabled by an occupational disease due to or resulting from the inhalation of harmful dust to a period of ninety days from the date of disablement and, on the order of the industrial board, for an additional ninety days.

New York City

Anniversary of Hospital Service.—The New York City Department of Hospitals announces that a public meeting will be held at the New York Academy of Medicine, May 12, to celebrate the completion of 200 years of continuous hospital service by the city. Dr. Sigismund S. Goldwater, commissioner of hospitals, will preside and speakers will be Mayor Fiorello H. La Guardia, on the functions of the municipality in the care of the sick; Dr. Henry E. Sigerist, Baltimore, historical development of medicine in the United States, and George E. Vincent, Ph.D., former president of the Rockefeller Foundation, responsibilities, opportunities and social significance of the hospital.

Society News.—Drs. Francis R. Packard, Philadelphia, and Edgar Erskine Hume, librarian, Army Medical Library, Washington, D. C., addressed a stated meeting of the New York Academy of Medicine, March 5, arranged in cooperation with the section of historical and cultural medicine. Dr. Packard spoke on "William Cheselden, Some of His Contemporaries and Their American Pupils Before the Hunters" and Dr. Hume on "The Medical Work of the Knights of St. John of Jerusalem."——Drs. Cornelius G. Dyke and John E. Scarff, among others, addressed the New York Neurological Society at a joint meeting with the section of neurology of the New York Academy of Medicine, March 3, on "A Pathognomonic Encephalographic Sign of Chronic Subdural Hematoma" and "Treatment of Obstructive Hydrocephalus by Third Ventriculostomy" respectively.——The Philadelphia Metabolic Association presented the program of the clinical section of the New York Diabetes Association, March 20, on "Diabetic Acidosis." Speakers, all of Philadelphia, were: Walter G. Karr, chemistry; Drs. Joseph T. Beardwood Jr., clinical aspects; Edward S. Dillon, complications, and Edward L. Bortz, treatment.——A symposium on "special surgery" was presented before the International and Spanish Speaking Association of Physicians, Dentists and Pharmacists, February 21, by Drs. Joseph Eastman Sheehan, Lewis Gregory Cole, Pol N. Coryllos and William H. Cary.——The Bronx County Medical Society recently adopted a resolution favoring adoption of the child labor amendment to the Constitution of the United States.

NORTH CAROLINA

Personal.—Dr. Samuel B. McPheeters, Charlotte, has been appointed health officer of Wayne County to take office April 15, after he has completed a course at the University of North Carolina.——Dr. John F. Foster, Sanford, was recently honored by being chosen "man of the year" in Lee County; he received a silver loving cup.——Dr. Mott P. Blair, Marshville, was honored at a community meeting, February 28, in recognition of his long service. He was chosen by the Marshville Federated Clubs as the outstanding citizen of the town.——Dr. Lorenzo L. Parks, Auburn, Ala., has been appointed health officer of Edgecombe County.

Society News.—Dr. John T. Saunders, Asheville, addressed the Buncombe County Medical Society, Asheville, February 3, on "Injuries to the Knee Joint."——Dr. Lawrence T. Royster, University, Va., was the guest speaker at the annual meeting of the Raleigh Academy of Medicine, February 1, on "Nephritis in Childhood."——Dr. Francis Bayard Carter, Durham, addressed the Guilford County Medical Society, Greensboro, January 2, on "Interruption of Pregnancy."——Drs. Malory A. Pittman, Wilson, and Hugh A. Thompson, Raleigh, addressed the Fourth District Medical Society at a meeting in Wilson, February 11, on "Pelvicephalometry" and "Traumatic Surgery" respectively.——Drs. William Eugene Keiter, Kinston, and Herbert A. Codington, Wilmington, addressed the New Hanover County Medical Society, Wilmington, January 16, on "Sodium Lactate Therapy in Severe Acidosis" and "Medical and Surgical Treatment of Gallbladder Diseases" respectively.

OKLAHOMA

Personal.—Dr. Maurice L. Peter, Blackwell, has been appointed health officer of Kay County to succeed Dr. Luther H. Becker, Blackwell.——Dr. Marshall D. Carnell, Okmulgee, has been appointed health officer of Okmulgee County to succeed the late Dr. John J. C. Rembert.

Society News.—Speakers at a meeting of the Tulsa County Medical Society, March 9, were Drs. Gregory A. Wall and Herbert S. Nauheim, on "The Fundamental Factor in the Cure of Hernia" and "Blood Groups and Paternity," respectively, and Floyd L. Rheam, attorney, "Some Legal Problems in Medicine." The Tulsa society was addressed, February 17, by Drs. Homer A. Ruprecht and Davy L. Garrett, Tulsa, on "Recent Advances in the Study of Biliary Diseases"; the program February 24 was a paper by Dr. Felix M. Adams, Vinita, on "The Management of Mental Cases."——Dr. Robert M. Shepard, Tulsa, addressed the Craig County Medical Society, recently, on pulmonary tuberculosis.

OREGON

Society News.—Dr. Paul A. Pemberton, Woodburn, addressed the Polk-Yamhill-Marion Counties Medical Society, Salem, January 14, on artificial fever therapy.——A discussion of pneumonia was presented before the Multnomah County Medical Society, Portland, February 19, by Drs. James Marr Bisaillon, Thomas D. Robertson and Sherman E. Rees.——Dr. John C. Lyman, Walla Walla, Wash., addressed the Umatilla County Medical Society, Pendleton, March 10, on "Renal Tuberculosis"; Dr. Carl J. Johannesson, Walla Walla, presented unusual x-ray films and discussed technical errors in films resulting in wrong interpretations.

PENNSYLVANIA

Testimonial Dinner.—Drs. David S. Funk, John B. McAlister and John F. Culp, Harrisburg, were guests of honor at a dinner given by central Pennsylvania alumni of the University of Pennsylvania at the Harrisburger Hotel, February 20. More than sixty attended. Dr. McAlister, who is a former president of the Medical Society of the State of Pennsylvania, graduated in 1887; Dr. Culp graduated in 1886 and Dr. Funk in 1881.

Society News.—Drs. George J. Kastlin and John M. Johnston, Pittsburgh, addressed the Beaver County Medical Society, March 12, on "Blood Dyscrasias as Seen in General Practice" and "Chemotherapy in Pneumonia" respectively.——Dr. Frank N. Allan, Boston, addressed the Lycoming County Medical Society, Williamsport, March 13, on "General Management of the Diabetic."——Dr. Marc W. Bodine, Williamsport, addressed the Tioga County Medical Society, February 21, on cancer of the stomach.

Philadelphia

Newbold Lectures.—The thirty-sixth group of Mary Scott Newbold Lectures was delivered March 4 before the College of Physicians of Philadelphia. The lecturers were Drs. Franklin L. Payne, on "Practical Aspects of Modern Female Endocrinology" ; Dorothea E. Smith, Ph.D., Edward J. Czarnetzky, Ph.D., and Dr. Stuart Mudd, "Evaluation of Mercurial Antiseptics in the Presence of Serum," and Dr. Walter Hughson, "Experimental Investigations of the Physiology of the Ear." ——Dr. Edward A. Strecker addressed the Obstetrical Society of Philadelphia, February 6, on "The Mental State of the Woman During Pregnancy and the Puerperium."——Dr. Ursus V. Portmann, Cleveland, addressed the Philadelphia Roentgen Ray Society, February 6, on "Postoperative Prophylactic Roentgen Therapy in Treatment of Carcinoma of the Breast,"——The New York Surgical Society held a joint meeting with the Philadelphia Academy of Surgery, February 12, with the following speakers, among others: Drs. Edward T. Crossan, on "Bone Drainage in Acute Hematogenous Osteomyelitis"; Lewis K. Ferguson, "Painful Shoulder"; Alexander Randall and Frederick A. Bothe, "Value of Preoperative Irradiation in Tumor Testis."——A discussion of meningitis featured the meeting of the Philadelphia Neurological Society, February 28, with the following speakers: Drs. Charles Armstrong, Washington, D. C., James W. Watts, Ignatius S. Hnelesk and Ernest L. Noone.

RHODE ISLAND

Bill Enacted.—H. 510, amending the workmen's compensation act, has become a law. Among other things, the new law requires the employer to furnish to an injured worker reasonable medical and hospital services and medicines without limit as to amount during the first eight weeks after an industrial injury, and for such other period as in the opinion of the director of labor may be deemed necessary. The prior law limited the employer's liability for medical services to $100 or $150, according to circumstances.

Bills Introduced.—H. 735 proposes, among other things, that "a licensed physician or surgeon cannot, without the consent of his patient, be examined in a civil action, as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient." H. 745 proposes to require all applicants for licenses to practice any form of the healing art, as a condition precedent to examination by their respective "professional" boards, to pass examinations in anatomy, physiology, pathology, diagnosis, chemistry, bacteriology and public health, to be given by a state board of examiners in the basic sciences, which the bill proposes to create. This basic science board is to consist of three members appointed by the director of public health because of their proficiency in the basic sciences. Neither the director of public health nor any member of any of the various "professional" examining boards is to be a member of the basic science board. H. 747, to amend the uniform narcotic drug act, proposes to define narcotic drugs so as to include cannabis and every substance neither chemically nor physically distinguishable from it. H. 748 proposes that in an appeal from an order of a licensing board revoking a license to practice medicine and surgery, osteopathy or chiropractic, the order of the board shall remain in effect during the pendency of the appeal. H. 749 proposes to authorize the state department of public health to make examinations of persons reasonably suspected of having venereal disease and to quarantine or to isolate persons infected with any venereal disease whenever quarantine or isolation is necessary to protect the public health.

SOUTH CAROLINA

Bill Passed.—H. 1640 has passed the house, authorizing the city council of any municipal corporation of more than 5,000 inhabitants and less than 10,000 inhabitants, which has acquired, constructed or caused to be constructed a hospital, to establish a city hospital commission to operate and manage such hospital.

TENNESSEE

Personal.—Dr. Alonzo E. Hardison Jr., Marysville, has been appointed director of the Blount County health department to succeed Dr. Owen F. Agee, Marysville, who resigned in November.——Dr. John B. Youmans, associate professor of medicine, Vanderbilt University School of Medicine, Nashville, has been appointed director of graduate instruction. Dr. Youmans will have special charge of courses given for practicing physicians with the cooperation of the Commonwealth Fund.

Society News.—Dr. Carl S. McMurray addressed the Nashville Academy of Medicine, February 4, on "Comparison of Hysterectomy and Radiation Therapy in Fibroid Tumors of the Uterus."——Dr. John T. Murphy, Toledo, Ohio, addressed the Chattanooga and Hamilton County Medical Society, Chattanooga, February 13, on bone tumors.——Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, addressed the Madison County Medical Society, Jackson, February 26. At a meeting February 4 Dr. James B. Miller, Jackson, presented a paper on "Minor Surgery in Treating Infections of the Hand."——Drs. Olin West, Chicago, Secretary, American Medical Association, and Harrison H. Shoulders, Nashville, secretary, Tennessee State Medical Association, addressed the Memphis and Shelby County Medical Society, March 17, on medical economics. Drs. Jerome L. Morgan and Frank T. Mitchell, Memphis, addressed the society, February 18, on "Prostatism" and "Anhydremia Associated with Intoxication" respectively.

TEXAS

Society News.—Drs. Robert L. Moore and John E. Dunlap, Dallas, addressed the Kaufman County Medical Society, Terrell, February 4, on "Tuberculosis in Infancy and Childhood" and "Allergy" respectively.——Speakers at a meeting of the Lamar County Medical Society in January at Paris were Dr. Davis Spangler and A. L. Frew, D.D.S., Dallas, on "Preoperative Care of the Cleft Palate Patient" and "Treatment of Cleft Palate" respectively.——Dr. Edward Delehanty, Denver, was guest speaker at a meeting of the Palo Pinto Medical Society, Mineral Wells, February 3, on "The Development of Neurology."——Drs. Charles P. Hawkins and George R. Enloe, Fort Worth, addressed the Tarrant County Medical Society, Fort Worth, February 4, on "External Cephalic Version" and "Epispadias in the Female" respectively.——Dr. Jackson Stewart Cooper, Abilene, addressed the Taylor-Jones Counties Medical Society, Abilene, February 11, on "Rupture of the Urinary Bladder and Urethra."

VIRGINIA

McGuire Lectures.—The annual Stuart McGuire Lectures of the Medical College of Virginia, Richmond, will be delivered by Dr. Edward C. Rosenow, Rochester, Minn., April 6-7, at the Richmond Academy of Medicine. Dr. Rosenow's subjects will be "Focal Infection and Elective Localization" and "Streptococci in Relation to Diseases of the Nervous System." During the day of April 7 clinics will be conducted by the faculty of the college.

Personal.—Dr. Fred J. Wampler, Richmond, has been appointed medical adviser to the Works Progress Administration of Virginia.——Dr. W. Johnson Strother, Culpeper, was guest of honor at a banquet recently given by the Medical-Dental Society of Culpeper County paying tribute to his long service as a physician. Speakers included H. B. Lacy, D.D.S., Culpeper; Rev. Thomas W. Hooper and Drs. Charles Bruce Morton II and John H. Neff, University; James G. Brown, Woodville; Jesse N. Clore, Madison, and Martin B. Hiden, Warrenton.

Society News.—The Southside Virginia Medical Association held its quarterly session at the Central State Hospital, Petersburg, March 10. Speakers were Drs. Thomas F. Wheeldon, Richmond, on "Value of the Cystine Content Determination in Treatment of Arthritis"; Guy W. Horsley, Richmond, "Postoperative Treatment of Abdominal Cases"; Charles R. Robins, Richmond, "Original Bassini Operation"; Paige E. Thornhill, Norfolk, "Two Important Prenatal Examinations and Obstetric Technic in a Poor Home"; Wright Clarkson and Wilbur Allen Barker, "Radiosensitivity and Radioresistance in Tumor Therapy."——The Postgraduate Medical Society at a meeting February 11 changed its name to the Fourth District Medical Society. Speakers were Drs. Thomas G. Hardy, Farmville, on differential diagnosis of acute conditions in the abdomen; John A. Proffitt, Burkeville, acute conditions in the chest, and John A. B. Lowry, Crewe, prevention and treatment of puerperal sepsis.

WYOMING

Scarlet Fever Prevalent.—The Wyoming state board of health reported 331 cases of scarlet fever in December, with five deaths; 325 cases in January, with no deaths, and 361 cases with no deaths in the first twenty days of February. An account in *Colorado Medicine* points out that the disease is mild and that about a third of the cases have occurred in persons more than 21 years old. The U. S. Public Health Service reported January 25 that scarlet fever was unusually prevalent through the West North Central, Mountain and Pacific states.

GENERAL

Tri-State Hospital Meeting.—The Tri-State Hospital Assembly will be held in Chicago, May 6-8, at the Hotel Sherman. The assembly comprises the hospital associations of Indiana, Illinois and Wisconsin, together with associated groups.

Seminar on Health Education.—The National Tuberculosis Association will sponsor a seminar on health education in New Orleans, April 21, the day before the opening of its annual session. There will be two courses, one on health education and one on popular health education. Emphasis will be placed on practical ways and means of teaching the child and reaching the adult public.

Medical Bill in Congress.—*Change in Status:* H. R. 11035, making appropriations for the War Department for the fiscal year ending June 30, 1937, has been reported to the Senate, with amendments. The provision in the bill, as passed by the House, forbidding the maintenance of medical units in the Reserve Officers' Training Corps was stricken from the bill by the Senate Committee on Appropriations. An additional appropriation was proposed to provide for the establishing and maintaining of such units.

Public Safety Program.—The National Safety Council will soon launch a public safety program to be carried out in conjunction with the five year campaign now in force to reduce traffic accidents. Recent expansion of the council's field for traffic accident prevention, made possible by a grant from the automotive industry, will facilitate the safety program. Eight field men will be available in various parts of the United States to assist state and community officials and organizations in their efforts to reduce accidents. Pamphlets written in popular style will be prepared for nationwide distribution, and illustrated articles will be prepared and distributed to newspapers. The new program is a response to various cities and states that have requested assistance in organizing definite public safety plans.

Changes in Status of Licensure.—The Rhode Island Department of Public Health reports the following disposition of a license revocation:

Dr. William H. R. Briggs, Pawtucket, license revoked by action of the state supreme court, which recently upheld revocation of his license by the department in 1933 on a charge of abortion.

The New York State Board of Medical Examiners recently reported the following action:

License of Dr. Vladimir Gregory Burtan, whose last known address was 133 East Fifty-Eighth Street, New York, revoked at a meeting, Dec. 20, 1935, because of his conviction of a felony.

At a meeting of the Board of Health of Hawaii, Dec. 28, 1935, the following action was taken:

Dr. Mars L. Madsen, formerly of Paia, Hawaii, license revoked for "habitual intemperance."

The Massachusetts Department of Registration in Medicine has reported the following:

Dr. Russell B. Street, Conway, license revoked, following his admission to the Northampton State Hospital.

Society News.—Dr. Donald B. Armstrong, New York, was elected president of the National Health Council at its annual meeting February 6 in New York. He succeeds Theodore Roosevelt.——The American Institute of Nutrition will hold its third annual meeting in Washington, D. C., March 25. John R. Murlin, Ph.D., Rochester, N. Y., is president of the institute and Icie G. Macy, Ph.D., Detroit, secretary.——The American Association of the History of Medicine will hold its annual meeting at Atlantic City, May 4, with afternoon and dinner sessions at Haddon Hall.——The annual convention of the Catholic Hospital Association will be held at the Fifth Regiment Armory, Baltimore, June 15-19.——The American Society for the Hard of Hearing will hold its annual meeting in Boston, May 26-30, at the Hotel Statler.——Dr. William F. Braasch, Rochester, Minn., was chosen president of the Northwest Regional Conference at its session in Chicago, February 16. The meeting next year will again be held in Chicago.——National Hospital Day will be observed May 12, the birthday of Florence Nightingale. Since 1921 hospitals have held open house on this day to acquaint the public with their work.——The southern section of the American Congress of Physical Therapy will hold a meeting in New Orleans March 23-24. Guest speakers will include Chicago physicians: Drs. Abraham R. Hollender, on "Newer Aspects of Ionization Therapy in Nasal Allergic Disorders"; Oscar B. Nugent," Evaluation of Phototherapy in Ophthalmology"; Harry C. Rolnick, "Transurethral Electroresection in Prostatic and Bladder Neck Obstructions," and John S. Coulter, "Physical Therapy in Relation to Arthritis," and Howard A. Carter, B.S., secretary, Council on Physical Therapy, American Medical Association, Chicago, "Generation of High Frequency Currents; Discussion of Concepts, Units and Radio Circuits as Applied to Short Wave Diathermy."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 15, 1936.

Reform of the Coroner's Inquest

The ancient office of coroner can be traced back to the twelfth century. His function is to inquire into deaths not due to natural causes, and on the whole he has done this efficiently through the centuries. But this archaic office has fallen behind the standard required in modern times and has been the subject of much criticism. The inquiry is not carried on by the strict rules of evidence which prevail in other courts, so that prejudice may be unfairly aroused and a case built up against an accused person. Moreover, before a case can come before a judge the accused has to appear in police court and the proceedings that have taken place before the coroner are unnecessarily duplicated. Radical reform has been delayed so long because the English are a conservative people, attached to ancient institutions, which they alter only after much criticism. But they are also practical and, as their history shows, have no difficulty when aroused in doing what is necessary. A committee of well known lawyers containing one representative of the medical profession, Sir Farquhar Buzzard, regius professor of medicine in the University of Oxford, was appointed by the government a year ago to inquire into the law and practice of coroners' inquests. The committee has now made recommendations that will radically reform the coroner's inquest and remove defects that have existed too long. The recommendations are as follows:

The coroners' jurisdiction should be limited to the investigation of the facts how, when and where the death occurred, and this investigation should be clearly distinguished from any trial of liability, whether civil or criminal. In cases of suicide the press should be prohibited from publishing an account of the proceedings, though the inquest should be held in public as at present. All that the press should be allowed to publish is the fact that the inquest has been held, the name and address of the deceased, and the verdict that he died by his own hand. The verdict of felo de se should be abolished, and the verdict in cases of suicide should simply be that the deceased died by his own hand. No inquiry into his state of mind should be made save as it might throw light on the question whether he took his own life, and no reference should be made in the verdict to the state of his mind. There are several reasons for this change. Out of consideration for the deceased's relatives rather than because of justification by the facts, juries have often brought in a verdict of "suicide while temporarily insane." The inquiry into the state of mind of the deceased has led to the reading in court of letters and other intimate documents written by him which have often been painful and harmful to the living. The coroner should no longer have the power to commit any person for trial on a charge of murder or manslaughter, and the inquisition should not name any one as guilty of these offenses. If questions of criminality are involved, the laws of evidence should be observed. When a person is suspected of causing death he should not be called and put on oath unless he so desires and should not be cross-examined. Coroners' courts should be prohibited from dealing with questions of civil liability. Verdicts of censure or exoneration should be prohibited, but this does not exclude general recommendations designed to prevent further fatalities. The coroner should have a discretion to dispense with holding an inquest in the case of deaths due to simple accidents or chronic alcoholism or deaths under an anesthetic or during an operation. But he should be obliged to hold an inquest in cases of suspected industrial disease. Necropsies ordered by coroners, save in exceptional cases, should

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be made by pathologists whose names appear on a government list, to be compiled under the advice of an expert committee. For cases of industrial disease there should be a special list of pathologists. At present the majority of necropsies performed on the order of the coroner are done by general practitioners, usually by the physician who attended the deceased, and it is a matter of the coroner's discretion whether a pathologist is employed or not. The clinical and postmortem evidence should be collated, and for this purpose the coroner or pathologist should be empowered to ask the practitioner who attended the deceased to supply a report or to be present at the necropsy, for an appropriate fee. In criminal cases a chief officer of police should be empowered to request the coroner at any time before the inquest is over to order a necropsy. The routine work necessary before and after a necropsy should be performed by the pathologist's assistant and not by police officers.

Qualifications for appointment as coroner should be primarily legal. Candidates should satisfy tests not only of their knowledge of law and their practical experience but also of their acquaintance with medical jurisprudence. Only lawyers should be appointed, as the sifting of evidence requires legal training. A coroner without medical knowledge would be fully informed of the medical aspects of the case by the medical witnesses. At present the majority of coroners are lawyers but a minority are physicians. The committee recognizes that the latter have done valuable work but considers that legal training is of greater importance than medical. The *British Medical Journal* objects to this recommendation. It admits the desirability of the coroner having a legal qualification but thinks that it is almost essential that he should have a medical one. It points out that there are a large number of persons qualified for both professions, which would be increased if the double qualification should be recognized as highly desirable in a coroner.

New Method of Producing Citric Acid

The Italian embargo on the export of lemons, resulting from the need for them in the Abyssinian war, would have resulted in world shortage of citric acid but for a British discovery. Until 1929 citric acid was obtained only from lemons and the whole supply was in the hands of Italian manufacturers. When the export became restricted, experiments were made in England and it was found that the black mold which forms on fruit turns sugar into citric acid. By a process of fermentation the black mold can be grown direct on sugar. From this was evolved a simple method of producing the acid, which is just as good as the original and is cheaper.

Antimosquito Measures for a Tropical Air Line

The new air line which is to be opened between the Sudan and Nigeria is awaiting a certificate of freedom from disease-carrying mosquitoes. It will not be operated until the necessary steps have been taken to clear the airdromes and the land in their vicinity of mosquitoes which might carry the germs of yellow fever. Fortunately the flying range of the mosquitoes does not exceed a mile and the areas to be treated are therefore not extensive. This measure is being taken as a precaution against interruption of the service in the future and also that the line may comply strictly with the provisions of the International Sanitary Convention. The new line passes from Khartum across the Sudan into French Equatorial Africa on its way to Kano in Nigeria, where it ends for the present. Subsequently it will be continued to Lagos. It is stated that the westerly part of the route is free of the risk of yellow fever contagion through mosquitoes. The work of drainage and disinfection is concerned only with the easterly portion. In its present form the route measures about 1,800 miles and will be operated as soon as its sanitary certificate is in order.

The Lowest Infant Mortality on Record

The registrar general's provisional figures for 1935, which have just been published, show the lowest infant mortality on record. The death rate of infants under 1 year of age for the whole of England and Wales was 57 per thousand live births. The table gives the annual rates for the last ten years. The

Infant Mortality Rates

Year	England and Wales	County of London
1926	70	64
1927	70	59
1928	65	67
1929	74	71
1930	60	59
1931	66	65
1932	65	67
1933	64	60
1934	59	67
1935	57	66

1935 birth rate for England and Wales is 0.1 per thousand of population below that of 1934 and 0.3 above that of 1933, the lowest recorded.

Tetanus from Catgut Sutures

Cases of tetanus due to catgut sutures occur from time to time in spite of every care in sterilizing the catgut, which therefore seems never to be perfectly safe. The latest case occurred in a boy of 15 who died from tetanus after an operation in a hospital at Cambridge. Tetanus bacilli were found in the sutures. The medical superintendent said at the inquest that in his forty-one years' experience no similar case had occurred. The particular gut used in this case was derived from sheep on a farm in Australia where the land was specially treated in order to kill the tetanus bacillus in the soil. The manufacture of catgut in this country now is carried on under scrupulously clean conditions and is subject to regulations of the Ministry of Health, which regularly sends inspectors to witness the process.

PARIS

(From Our Special Correspondent)

March 3, 1936.

Free Medical Care for Veterans

In France, every pensioned veteran, i. e., with an incapacity of at least 10 per cent, is entitled to get the free care of the physician of his choice. The physician is paid by the government according to an official scale. A control bureau will prevent abuses. This bureau has just published its report. The number of beneficiaries are 856,427, of whom 453,654, or 53 per cent were treated. The total expenses were more than 114,000,000 francs, an average of 252 francs per payee. The doctor fees (including transportation fees) were 40 per cent of this sum. The cost of drugs is figured at 43 per cent, the hospital fees 10 per cent and the remainder, 7 per cent, administration charges. This means that the average paid for every veteran to every physician is 107 francs, and that the average for each of the 17,000 physicians concerned is about 3,000 francs. Only ninety-four physicians received more than 20,000 francs in the calender year 1935. As a matter of fact, the care given to the disabled veterans is a small benefit to the French general practitioner.

Aron's Reaction for Cancer

Béclère read, before the Académie de médecine, a paper about Aron's test or reaction. This test, initiated in 1933 and derived from Zondek's work, is an adrenal cortex reaction. It consists in examining, by biopsy, a part of the adrenal cortex of a rabbit, and after three or four days injecting the rabbit

with a urinary extract. Two days after the last injection the rabbit is killed and its renal cortex compared with the fragment taken in the first biopsy.

Aron reports the results in 162 tests on 125 subjects, on whom his method was used for clinical purposes. As the method depends on histologic interpretation, being a comparison between the cortex of the treated animal before and after the treatment, it was necessary not to let the pathologist be aware of the diagnosis in the cases studied. Again, to make the chances even, the series of observations were mixed with positive and negative cases in equal proportions. A strict control allowed the elimination of thirty-four of the 162 results, leaving an undisputable remainder of 128 reactions. These were grouped under six notations: negative, doubtfully negative, i. e., no cancer; doubtful, +, ++ and +++, i. e., cancer. Thirty-five cases involved unquestionable instances of cancer. The reaction was correct in thirty; three +++, ten ++, 9 + and eight doubtfully positive. In five authenticated cases the reaction was negative. It concerned one cancer of the pylorus, three of the stomach and one of the colon. In all, the proportion of suspected and biologically confirmed cancers was 85 per cent. Eighty-eight tests were made in noncancerous ailments, plus 8 cancers operated on without any clinical evidence of relapse. Seventy-eight reactions were negative and thirteen were doubtfully negative. In ten cases, on the other hand, the reaction was + or doubtfully positive. So the proportion of correct reactions was 89.3 per cent. The whole amount of errors is consequently fifteen in 131 tests, or 11.7 per cent.

These results are in favor of the specificity of the substance contained in the urine of the cancerous, regardless of the nature of the tumor. The number of errors is related to technical difficulties, for this test requires an experienced pathologist, adequately equipped. These considerations stand in the way of the practical adoption of Aron's technic, but its author is satisfied to have ascertained its principle, hoping that further improvements will permit the use of this new and important test by pathologists generally.

BERLIN

(From Our Regular Correspondent)

Jan. 27, 1936.

Jubilee of Kaiser Wilhelm Society for Advancement of Science

Under the presidency of the physicist Prof. Max Planck, the Kaiser Wilhelm Society for the Advancement of Science celebrated, January 10, its twenty-fifth anniversary.

The creation of research centers in addition to the German scientific academies, universities and hochschulen, centers not strictly controlled by the government, had long been contemplated. The expansion of official scientific enterprises in Germany necessitated the erection of a research institution devoted to special fixed scientific fields. Besides, in many instances research activities had suffered because of the exacting nature of teaching duties in the hochschulen. Then, too, the ability to teach is not the possession in equal degree of every research worker. At length sentiment crystallized about the concept of a well appointed research institution staffed by competent specialists. Since it was not subsidized by the government, this institution, in order to function with all possible freedom, must be established on a sound economic basis. Funds for its maintenance therefore would be subscribed chiefly by enthusiastic private patrons of scientific progress. The prosperous condition of the Germany of twenty-five years ago made possible the realization of such a project, so in 1911 at the suggestion of Wilhelm II, acting in cooperation with a group of men prominent in economic life, the Kaiser Wilhelm Society, an organization unique of its kind, was called into being on the occasion of the centenary of the University of Berlin. Adolf von Harnack, who served as president of the society from its founding until his death, was succeeded by Max Planck. Substantial assistance came to the society from various sources: its own members, industrial leaders, other wealthy donors, and the government.

The society was divided into thirty-four organizations distributed throughout the reich with headquarters in Berlin-Dahlem. Some of the institutes were devoted to more or less theoretical activities; for example, the institute of biology and that of cell physiology, both in Berlin-Dahlem; the institute of anthropology, human genetics and eugenics, the institute of biochemistry and, farther away, the well known Vogelwarte (ornithologic observatory) at Rossitten in East Prussia.

Another group of research stations grapple with important practical problems. Of special benefit to the industrial worker is the institute of occupational physiology at Dortmund, which concerns itself with the physiology, pathology and hygiene of work. There in particular a systematic study is made of the questions of fatigue, of decent and suitable working conditions, of the relationship between types of work and types of diet and so on, the institute thus functioning in the interest of all as an objective and impartial tribunal. The institute for research in cerebrology at Berlin and the German research institute at Munich also carry on valuable activities.

It is the business of the hydrobiologic institution constantly to seek out new and promising paths of research, while its practical function has to do with increasing the stock of fish in our waters, an important factor in the nation's food supply. The German entomologic institute occupies an analogous position, its work combining the theoretical and the practical. While making an objective study of how products worth millions of marks are each year destroyed by insects, the institute at the same time directs a substantially successful campaign against these pests. The work program of the institute for research in stock breeding at Hünchеberg is carried out in much the same way. This institute is especially concerned with the fundamentals of crop sowing and animal husbandry.

There is a third group of research institutions in which problems created by the needs of industry are dealt with. Thus there is an institute for coal research at Müllheim (Ruhr), an institute for metallurgic research and, separate from the last named, an institute for iron research. An institute for silica research helps to solve the technical problems of the ceramics, the glass and the cement industries, while an institute for leather research occupies itself with the fundamentals of the leather industry, including the chemistry and colloid chemistry of tanning technic. These represent but a few examples of a much longer list of important research institutions.

As the activities of the Kaiser Wilhelm Society embrace both the theoretical and the practical, so the central administration keeps free from onesidedness, for, apart from the institutions mentioned, the society serves the cultural interests by supporting special sociological-scientific societies devoted to esthetic, cultural and legal studies. Further units of the Kaiser Wilhelm Gesellschaft are quasinational, quasi-international in character; for example, the Rovigno zoological station, a German-Italian institution for oceanographic research; the biologic station at Lunz (Lower Austria), and finally the Jungfraujoch High Alpine research station in Switzerland, maintained for common research activities by Germany, France, England, Belgium, Austria and Switzerland.

The fact that through the evil days that followed the war even with inflation and revolution the work of the society never completely came to a standstill, and that under three different types of government the organization has been able to function and to expand, bears witness to its vitality. In every field of learning the notable achievements of the Kaiser Wilhelm Gesellschaft have been acknowledged.

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This was well expressed in the jubilee celebration, in which numerous friends of science participated. Among others the American ambassador stressed particularly the cordial international relations maintained by the society. The president of the Kaiser Wilhelm Society, Professor Planck, called attention to the substantial assistance rendered by the government of the reich and praised the generosity of the Rockfeller Foundation, recently expressed again in the gift of a new building for the Kaiser Wilhelm institute of physics. Of the guests lodged in the society's Harnack House (a building set aside for the accommodation of visitors), the Americans outnumbered all other foreigners (a total of 172 guests of whom one third were foreigners was accommodated at the house during the summer semester of 1935). Two scholarly festschrifts were published in connection with the jubilee. Among the notable anniversary papers was one by Professor Debye, director of the Kaiser Wilhelm institute of physics, on the structure of liquids; another by Professor Bruns, on German art in Italy, was also of interest.

The problem of the gleichschaltung of learned institutions also came to the fore in the course of the jubilee. Professor Planck in his commemorative address mentioned the late Nobel prize winner Haber, who had been director of a Kaiser Wilhelm institute and whose ingenious nitrogen synthesis was of great service to the German prosecution of the war. The reichsminister of education, Rust, in an after dinner speech again referred to Haber, who was a Jew, without mentioning him by name. While acknowledging the great service performed by this man, he said, one must in such cases differentiate between the scientist and the person. Rust further stated as the fundamental ideal for scientific research that it be carried on within the wind-proof shelter of liberally endowed institutions, freed from restraint and separated from teaching activities. But already the experience of the World War had shown that research could not always maintain this character. It was then for the first time that the Kaiser Wilhelm Society, departing from its original purpose, bowed to necessity and acquired the power to "carry on," this power which alone underlies all existence. The form this power may take is immaterial. History shows time and again how forms may be shattered; the form of the Kaiser Wilhelm Society too may disintegrate. (It is perhaps interesting to note in this connection that the society is being assailed by the party organs because of its scientific objectivity and reservedness in political matters.)

Genital Tuberculosis

As he reported to the Berlin Medical Society, Dr. Caffier has observed at the woman's clinic of the University of Berlin an increase of genital tuberculosis in recent years. He attributes this less to the improvement in diagnostic aids than to the more frequent performance of laparotomies, such as are undertaken on account of sterility, for example. The diagnosis of this type of tuberculosis is still more or less accidental. According to Caffier, microscopic examination is absolutely essential, especially for the recognition of tubal tuberculosis, cystic tuberculous salpingitis, and uterine and ovarian tuberculosis. Primary tuberculosis of the genitalia is a rarity (contrary to former opinion); it is chiefly a question of endogenic reinfection with hematogenic diffusion through general tuberculosis. Exogenic reinfection is not at all rare. Other present-day therapeutic procedures besides operation include roentgen treatment and heliotherapy, the last named a prolonged and expensive but successful method.

In the other woman's clinic of the university, the Charité, the frequency of genital tuberculosis could not be observed. Perhaps also regional differences count for something in the dissemination of this disease; at any rate, the matter of fact here related remains important.

ITALY

(From Our Regular Correspondent)

Jan. 15, 1936.

The National Antituberculosis Congress

The fifth national congress for the crusade against tuberculosis was recently held in Rome, under the chairmanship of Prof. Eugenio Morelli, at the Istituto Carlo Forlanini. Professor Besançon, secretary of the International Union Against Tuberculosis, was present.

Prof. Bruno Biagi, president of the Istituto della previdenza sociale, spoke on insurance in tuberculosis and concluded that farmers, government officials and priests should be included in the benefits of compulsory insurance. This would diminish the expenses of provincial antituberculosis centers, which could then intensify the work in the dispensaries for the prevention of the disease. Another aspect in the problem of prevention of tuberculosis is the care of tuberculous mothers and their children.

The official topics dealt with the biologic, clinical, therapeutic and social aspects of tuberculosis.

Professor Petragnani, general director of public health, spoke on the chemical constitution of the tubercle bacillus. He studied the phenomenon of the decomposition of tubercle bacilli in their chemical constituents when treated by phenol, acetone and alcohol-ether. The particles of tubercle bacilli thus obtained have been tried with encouraging results as vaccines for the diagnosis, prevention and treatment of tuberculosis. They preserve antigenic characteristics, as has been proved by the results of the Bordet-Wassermann reaction, and lose them permanently, as has been proved by the results of tests in vitro and in vivo by the addition of small amounts of sulfuric acid to the vaccines.

Professor Michelli of Turin, with the roentgenologic collaboration of Professor Lupo, spoke on endogenous reinfection and exogenous superinfection in postprimary pulmonary tuberculosis. Exogenous superinfection is generally produced, as primary tuberculosis, by the air through the bronchial route. It is independent, in its effects, of the origin of the inhaled tubercle bacilli. The statement that exogenous superinfection follows a direct route from the cervical lymphatic ganglions of the lung through certain routes pathologically opened, such as furuncles, eczema and the tonsils, has not been proved. The speaker believes that the name "postprimary tuberculosis" should be used instead of "tuberculosis in adults," because the latter designation fails to make any reference to the primary infection. The clinical and roentgen examination of postprimary tuberculosis, verified by observations of the pathologic anatomy, have nearly settled the question of an endogenous origin of the condition. This statement is supported by the following facts: the persistence of the satellite ganglions of the primary infiltration as an almost constant source of infection and the frequency of tuberculous bacillemia and of the development of new pulmonary foci from a bacillary dissemination through the blood. The origin of phthisiogenic infiltration is now considered endogenous, the infiltration taking place through the blood, either directly or indirectly. In cases of the last mentioned group the infiltration takes place in clinically inactive old lesions, either healed or calcified. With regard to exogenous superinfection in persons clinically healthy, who have overcome the primary infection, the results of recent researches prove that the danger of contagion exists also for those persons. The statement is confirmed by the increased frequency of infection in various familial and epidemiologic groups as well as by the frequent appearance of new lesions, including early tuberculous infiltration, which are revealed by the roentgen examination of the thorax of these persons. The occurrence of a double infection in human beings with tubercle bacilli of the bovine and human types, which is rare, supports the theory of exogenous superinfection. Therefore, both the exacerbation of pulmonary tuberculous lesions and endogenous reinfection do not exclude the possibility of

exogenous superinfection, the importance and frequency of which vary with the intensity, frequency and duration of contact with the contagious source, on the one hand, and with the age, constitution and economical, hygienic and environmental conditions of the individuals who are exposed to the contagion, on the other hand.

Professor Monaldi spoke on the treatment of parapneumothoracic empyema. The results of modern methods, which are followed at the Istituto Forlanini, have shown that pneumothoracentesis and lavages are indicated in the treatment of empyema of sudden onset as well as during the early stage of development of simple and infected empyema. In cases of empyema resulting in pleuritis, in the presence of an effective pneumothorax, the delaying of its progress by means of lavages until the pleural cavity is eliminated is advisable. Anterior elastic thoracoplasty is indicated when pneumothorax is clinically ineffective.

Professor Breccia spoke first on articles made at home, to be sold to the public, as a cause of the development and spread of pulmonary tuberculosis and on the same type of work in relation to the habilitation of recovered tuberculous patients. This type of work may be as harmful as work performed in factories and hence should be considered from several angles, such as the quality and quantity of work performed, the constitution of the workers in relation to the work performed, the environment, food and assistance that they have. The closer the contact that a domestic worker and his family have with the material they work on, the greater the danger of contagion between the employer, the domestic worker and his family, the salesmen and the consumers. Food that is eaten without any preparation is excluded from items prepared at home. The types of domestic workers can be differentiated as follows: strong and robust individuals, delicate persons, those with diminished resistance, and patients with latent, active or cured tuberculosis. The persons in the first group can stand working at home, provided the general and environmental conditions are good. The physiologic conditions in the persons of the second group should be studied, with special attention to the results of allergic tests and also to susceptibility to food, work and meteorological changes. Workers with either active or silent tuberculosis should stop working and not resume work until the evolution of tuberculosis is under control and the greatest reduction of activity of the tuberculous lesions is obtained. The problem of work for these patients can be simplified by transplanting them with their families to small mountain villages, in which their health improves. The choice of work to be given to the patients and the supervision of their work, so as to protect them, could be easily carried on in these places through branches of antituberculosis centers.

A plenary session took place, under the chairmanship of Professor Petragnani, to discuss the rôle of antituberculosis congresses in the new trends given to the crusade against tuberculosis. A suggestion for propaganda was presented which consisted in the preparation of an automobile provided with a sound cinema and equipment for x-ray work. The latter is used in making roentgen examinations of school children. The roentgenograms are compiled in such a manner as to form an x-ray record book for each child of school age.

Deaths

Dr. Ettore Marchiafava, professor emeritus of pathologic anatomy at the University of Rome, and also a senator, recently died. He was the first to point out, in collaboration with Celli, the etiologic rôle of the meningococcus in cerebrospinal meningitis, in describing, in collaboration with Bignami, the degeneration of the commissural paths of the encephalon caused by chronic alcoholism and in giving the clinical picture of noncomplicated Banti's splenomegalic jaundice. In 1879, before Laveran interpreted the pigmented bodies in malaria, he stated that melanin is a derivative of hemoglobin and that the transformation is followed by necrobiosis of the erythrocytes. Later he reported his discoveries on the first stages of development of the malarial parasites. During his life Dr. Marchiafava had been president of the National Council of Sanitation, vice president of the Italian Red Cross, organizer of the crusade against malaria in Italy, speaker before the senate for enforcement of laws for the protection of Italian mothers and children, and founder of the first Italian antituberculosis sanatorium in Italy, which was opened in Rome.

BUDAPEST

(From Our Regular Correspondent)

Feb. 15, 1936.

Viruses in the Etiology of Skin Diseases

At the ninth International Dermatologic Congress, Dr. R. T. Brain read an instructive paper on virus in the cause of skin disease. Lesions of the skin known to be due to viruses are of various types, macular-erythematous or purpuric, papular, vesicular or pustular. Even nodules and tumors due to cellular proliferation and overgrowth may be produced, as in the case of warts and molluscum contagiosum. The virus etiology of a skin disease depends on such evidence as: 1. The histologic appearance of the lesion. Here in addition to gross examination valuable information can be obtained by noting the presence or absence of inclusion bodies, cytoplasmic or nuclear, and by applying staining methods suitable for the demonstration of virus particles (elementary bodies). 2. The absence of any cultivable organism, although it has to be remembered that nonliving agents are capable of producing lesions similar to some produced by viruses. 3. The demonstration of the virus in the lesion by animal inoculation, should a suitable susceptible experimental animal be available (herpes, variola, vaccinia) or, failing this, by the application of in vitro immunity reactions such as agglutination and precipitation (zoster, varicella, variola, vaccinia) and complement fixation (herpes, zoster, varicella, variola, vaccinia).

In these immunity tests the known antiserum may be provided by a hyperimmunized animal when a suitable experimental animal is available (herpes, variola, vaccinia) or by serum from human cases and convalescents (zoster, varicella). In Dr. Brain's investigations these methods have been applied to the study of virus diseases of the skin. With herpes no difficulty has been encountered in demonstrating the virus in vesicle fluid by guinea-pig inoculation, and the constant presence of neutralizing and complement fixing antibodies in the serum of guinea-pigs and man infected with the virus has been established. In the case of zoster and varicella, complement fixation tests with vesicle fluids and serum from convalescent patients have provided further evidence of the close relationship of these viruses.

Elementary body suspensions made from molluscum bodies have been used as antigens in complement fixation tests with serum from six patients with multiple mollusca, but specific fixation was found in only one case. Precipitin reactions with appropriate antigens and patient's serum could not be obtained in the case of warts or of molluscum contagiosum.

The skin diseases of obscure etiology producing vesicular or bullous lesions are perhaps the most suitable for investigation, and ten cases of dermatitis herpetiformis have been examined. Fresh bullous fluid from four cases was inoculated into guinea-pigs; two primary, takes were obtained and in one case passage was effected; this experience is in keeping with the investigation of Bedson. However, complement fixation and precipitin tests made with the bullous fluids and the patients' serums were entirely negative, and a few patients with toxic bullous eruptions were examined with similar results. The serums from a certain number of patients with psoriasis have been

examined for the presence of specific antibody by means of the complement fixation and precipitin tests, an antigen made from psoriatic scales being used. The results have all been negative.

It was thought that artefact bullae superimposed on the lesions of psoriasis or lichen planus might contain the hypothetic virus but similar tests gave negative results.

Results of the Serum Treatment of Scarlet Fever

Dr. Ignatius Dénes observed 480 cases of scarlet fever at the epidemic hospital of Nagyvárad. Of these the ninety-seven more serious cases were treated with scarlet fever serum. The injections were made with a preparation which, by precipitation of the nonspecific albumin bodies, had been concentrated to from one third to one fourth of its original quantity. In forty-six of the patients who received serum treatment, Dr. Dénes observed improvement in the general condition: the fever dropped, the pulse became more regular and the appetite improved. The other patients either showed temporary improvement or were not at all influenced. Complications such as myocarditis, suppuration of the maxillary sinus, otitis, pyorrhea or sepsis were not influenced by the serum therapy at all. These complications occurred with the same frequency regardless of whether the patients had or had not received serum treatment. In observing these ninety-seven cases and by comparing them with the several hundred cases in which no serum treatment had been given, Dénes has come to the following conclusions: Patients in whom the scarlet fever infection seems mild in the beginning do not require serum therapy, because the injection cannot prevent complications. For scarlet fever patients with severe sore throat, adenopathy and beginning otitis, serum therapy is of little value. Serum therapy is contraindicated in cases of arthritis, because the articular symptoms frequently become more severe as a result of the injections. Serum therapy is indicated particularly in primary toxic cases in which there are severe cerebral symptoms, as emphasized by W. Stoletenberg of Germany. In these cases an injection often has a most favorable influence in lessening the severity of the condition.

Cancer Mortality in Hungary

In the rural districts of Hungary the rate of cancer is 103 per hundred thousand of population, while in the city of Budapest it is 150. Switzerland and the Netherlands, highly cultured countries, show a high cancer mortality, while that of Rumania, the Balkan states and Spain is relatively low. Of the cities, the cancer mortality of Bucharest is the lowest, while that of Geneva and Munich is the highest (370 per hundred thousand). According to the latest Hungarian statistics, in both sexes cancer of the digestive tract and the biliary ducts is most frequent. Cancer of the female genitals is six times as frequent as of the corresponding organs of men. The number of cases cured of cancer is on the increase and the future is encouraging.

Marriages

JOHN GLEN MCNIEL, Pennington Gap, Va., to Miss Mary Roberta Kuyk of Richmond, Dec. 28, 1935.

ENOCH RAYMOND FENTON to Miss Margaret Isabel Conway, both of Washington, D. C., Dec. 21, 1935.

FRANK ROLFE WESTNEY, Atlantic City, N. J., to Miss Eyvsone R. Stallings of Richmond, Va., recently.

PAUL CLARK MCANDREW, Scranton, Pa., to Miss Mary L. Brennan of Carbondale, January 18.

MARK T. VORNHOLT to Miss Ada Curdy, both of Roundup, Mont., Dec. 18, 1935.

ROY HAYMON MCKAY, Akron, Ohio, to Miss Katherine Segi, January 14.

EDWARD A. LECOCQ to Miss Jane Nettleton, both of Seattle, February 4.

Deaths

William Holland Wilmer ● for many years professor of ophthalmology at Johns Hopkins University School of Medicine, Baltimore, died, March 12, at his home in Washington, D. C. Dr. Wilmer was born in Powhatan County, Va., Aug. 26, 1863. He graduated in medicine at the University of Virginia in 1885 and carried on graduate study at the New York Polyclinic and at various hospitals in Europe. He began practicing in New York in 1887 and later became associated with the New York Polyclinic and the Bellevue Hospital. In 1906 he became professor of ophthalmology at the Georgetown University School of Medicine, Washington, D. C., which position he held until 1925, when he went to Baltimore as professor of ophthalmology at the Johns Hopkins University School of Medicine and ophthalmologist in chief to the Johns Hopkins Hospital, and director of the Wilmer Institute, which was created as a tribute to him by patients and friends. He retired from these positions in 1934. In 1911 Dr. Wilmer was commissioned a lieutenant in the Medical Reserve Corps of the United States Army and at the time of his death held the rank of a brigadier general. During the World War he was officer in charge of the army medical research laboratory of the air service at Mineola, L. I. In August 1918 he went to France as officer in charge of medical research laboratories for the American Expeditionary Forces. He was awarded the Distinguished Service Medal in 1919 and in 1924 was decorated with the cross of a commander of the Legion of Honor of France. He was a member and past president of the American Ophthalmological Society, the Association of Military Surgeons of the United States and the Medical Air Service Association; a member of the board of directors of the Advisory Committee for the Prevention of Hereditary Blindness; a member of the National Institute of Social Science, National Committee on Mental Hygiene, American Association for the Advancement of Science and Washington Academy of Sciences. He was an honorary member of the Oxford Ophthalmological Society of England, the Hungarian Ophthalmological Society, the Chicago Ophthalmological Society and the Saranac Medical Society. Dr. Wilmer was one of the founders of the American College of Surgeons. He held honorary degrees from Georgetown, Princeton and New York universities. He contributed much to the periodic literature on ophthalmology.

Marcus Adolphus Rothschild ● New York; Columbia University College of Physicians and Surgeons, New York, 1911; clinical professor of medicine, New York University, University and Bellevue Hospital Medical College; past president and president-elect for 1937 of the Medical Society of the County of New York; member of the American Society for Clinical Investigation and the American Association of Pathologists and Bacteriologists; served during the World War; president of the medical board and on the staff as attending physician of the Beth Israel Hospital; consulting physician to the French Hospital; aged 48; associate physician, 1925-1930, and cardiographer, 1930-1933, Mount Sinai Hospital, where he died, February 16, of pneumococcic meningitis.

Edward Quintard ● New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887; emeritus professor of medicine and consulting physician, New York Post-Graduate Medical School and Hospital, Columbia University, and formerly vice president, professor of medicine and medical director; member of the board of regents of the University of the South, Sewanee, Tenn.; fellow of the American College of Physicians; author of books of verse; aged 69; died suddenly, February 12, in Chattanooga, Tenn., of coronary thrombosis.

William Burton Thorning ● Houston, Texas; University of Vermont College of Medicine, Burlington, 1899; member of the House of Delegates of the American Medical Association in 1922; formerly councilor of the Ninth District of the State Medical Association of Texas; past president of the Texas Surgical Society; member of the Southern Surgical Association; fellow of the American College of Surgeons; in charge of the Houston Clinic; aged 63; died, February 12, in St. Joseph's Infirmary, of coronary thrombosis.

Earle Hobart McRae, Tampa, Fla.; Atlanta College of Physicians and Surgeons, 1911; member of the Florida Medical Association and the Associated Anesthetists of the United States and Canada; fellow of the American College of Surgeons; past president and secretary of the Hillsborough County Medical Society; served during the World War; aged 48; director, surgical division, Tampa Municipal Hospital, where he died, January 20, of coronary thrombosis and embolism.

William P. Orr Jr. ● Lewes, Del., University of Pennsylvania Department of Medicine, Philadelphia, 1884; past president of the state board of health and the Sussex County Medical Society; for many years a member of the board of education; formerly medical officer in charge of the Delaware Breakwater Quarantine Station of the U. S. Public Health Service; on the staff of the Beebe Hospital; aged 78; died, January 9, of heart disease.

John Hamilton Revington, Chattanooga, Tenn.; University of Tennessee College of Medicine, Memphis, 1914; member of the Tennessee State Medical Association and councilor of the third district; past president of the Chattanooga and Hamilton County Medical Society; fellow of the American College of Surgeons; served during the World War; aged 45; on the staff of the Baroness Erlanger Hospital, where he died, January 27.

Joseph Poland ● Atlantic City, N. J.; Jefferson Medical College of Philadelphia, 1907; past president of the Atlantic County Medical Society; for many years medical inspector of the city schools; at one time member of the medical staff of the Jewish Seaside Home; on the staff of the Atlantic City Hospital; aged 50; died, January 8, in the Temple University Hospital, Philadelphia.

James Newbegin Worcester, New York; Columbia University College of Physicians and Surgeons, New York, 1910; served during the World War; at one time assistant professor of clinical surgery, Cornell University Medical College; on the consulting staff of the Beekman Street Hospital; aged 51; died, January 10, in the Presbyterian Hospital.

Wilbur Warren Williams ● Coldwater, Mich.; Eclectic Medical College, Cincinnati, 1915; University of Michigan Homeopathic Medical School, Ann Arbor, 1921; president of the Branch County Medical Society; aged 44; on the staff of the Wade Memorial Hospital, where he died, January 11, of cerebral hemorrhage.

Rufus Lee Rigdon ● San Francisco; Cooper Medical College, San Francisco, 1887; clinical professor of genito-urinary surgery, emeritus, Stanford University School of Medicine; member of the American Urological Association; consultant in urology to the Lane Hospital; aged 76; died, January 21, of lobar pneumonia.

Julius Andrew Mood, Sumter, S. C.; Medical College of the State of South Carolina, Charleston, 1879; member of the South Carolina Medical Association; veteran of the Spanish-American War; formerly mayor of Sumter and chairman of the city school board; aged 81; died, February 7, of carcinoma of the rectum.

William Sheldon Coons, Yonkers, N. Y.; University of the City of New York Medical Department, 1891; health commissioner of Yonkers; on the staff of St. John's Riverside Hospital and director of the Gray Oaks Hospital; aged 66; died, January 17, of embolism, following an injury to the knee.

Monroe Aaron Maas ● Selma, Ala.; Johns Hopkins University School of Medicine, Baltimore, 1911; served during the World War; on the staff of the Vaughan Memorial Hospital; formerly on the staff of the Selma Baptist Hospital; aged 47; died, January 29, of carcinoma of the pancreas.

Hamilton Rinde, Middletown, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1908; member of the American Psychiatric Association and the Connecticut State Medical Society; on the staff of the Connecticut State Hospital; aged 56; died, January 3, of coronary thrombosis.

Henry Theodore Pope ● Lumberton, N. C.; North Carolina Medical College, Davidson, 1894; past president of the Robeson County Medical Society; on the staffs of the Baker Sanatorium and the Thompson Memorial Hospital; aged 64; died, February 12, of influenza and heart disease.

Wiley Egan Woodbury ● New York; Detroit Homeopathic College, 1906; member of the Michigan State Medical Society; served during the World War; formerly director of the Fifth Avenue Hospital; aged 55; died, January 6, in St. Joseph's Hospital, Phoenix, Ariz., of pneumonia.

Luther Lochman von Wedekind ● Medical Director, Captain, U. S. Navy, retired, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1886; entered the navy in 1888 and retired in 1928; aged 71; died, Nov. 24, 1935, of chronic myocarditis.

Francis Howard McCaskey ● Rochester, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1901; past president of the Beaver County Medical Society; on the staff of the Rochester General Hospital; aged 64; died, Dec. 24, 1935, of cardiovascular renal disease.

Emmet Lee Fuller, Demopolis, Ala.; University of Alabama Medical Department, Mobile, 1900; member of the Medical Association of the State of Alabama; aged 61; died, January 16, in the Vaughan Memorial Hospital, Selma, following an operation for renal calculus.

Daniel Patrick Teter, Chicago; Baltimore Medical College, 1889; on the staffs of the Swedish Covenant Hospital and the Martha Washington Hospital; at one time medical warden at the Cook County Hospital; aged 69; died, January 9, of coronary thrombosis.

Daniel Carson Louchery, Clarksburg, W. Va.; University of Maryland School of Medicine, Baltimore, 1880; member of the West Virginia State Medical Association; for many years a member of the staff of St. Mary's Hospital; aged 90; died, January 3.

Frank Edmund Luke, Chatham, Pa.; Faculty of Medicine of Trinity College, Toronto, Ont., Canada, 1886; member of the Medical Society of the State of Pennsylvania; aged 72; died, January 7, of cerebral arteriosclerosis and cerebral hemorrhage.

Herbert Elias Kelly, Ida, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899; member of the Michigan State Medical Society; aged 62; died, February 6, in St. Vincent's Hospital, Toledo, of heart disease.

Nelson Alonzo Pennoyer, Kenosha, Wis.; Hahnemann Medical College of Philadelphia, 1870; formerly medical superintendent of the Pennoyer Sanitarium, now known as St. Catherine's Hospital and Sanitarium; aged 86; died, Dec. 26, 1935.

Rolland Vincent Turner, Aurora, Ill.; State University of Iowa College of Medicine, Iowa City, 1925; member of the Illinois State Medical Society; aged 37; died, January 23, in the Misericordia Hospital, Milwaukee, of Addison's disease.

Emory Chester Rebman ● Austin, Minn.; Northwestern University Medical School, Chicago, 1909; president of the Austin Clinic; on the staff of St. Olaf Lutheran Hospital; aged 50; died, January 7, of pneumococcic meningitis.

Charles Fulton Parker, South Windham, Maine; University of Vermont College of Medicine, Burlington, 1898; member of the Maine Medical Association; aged 66; died, January 1, of pulmonary embolism and bronchopneumonia.

Edwin G. Rust ● Cleveland; Homeopathic Medical College, Cleveland, 1880; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; aged 78; died, Dec. 29, 1935.

Albert Patrick O'Leary, Bigtimber, Mont.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; member of the Medical Association of Montana; mayor of Bigtimber; aged 64; died, Dec. 28, 1935.

William Henry Harrison Lewis, Fayette, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1889; member of the Mississippi State Medical Association; aged 69; died, January 6, of pneumonia.

John Neuberger ● Cleveland; Western Reserve University Medical Department, 1901; on the staffs of St. John's and the Lutheran hospitals; aged 60; died, January 8, of carcinoma of the rectum with metastasis to the liver.

George McIntyre Campbell ● Akron, Ohio; Western University Faculty of Medicine, London, Ont., Canada, 1904; aged 55; on the staff of the People's Hospital, where he died, January 14, of cerebral hemorrhage.

Alfred Edwin Wadsworth, Malverne, N. Y.; Long Island College Hospital, Brooklyn, 1891; died, January 15, in the Meadowbrook Hospital, Hempstead, of injuries received when he was struck by an automobile.

Samuel Cary Lightner, Kingston, Ohio; Medical College of Ohio, Cincinnati, 1886; aged 74; died, January 7, in the Mount Carmel Hospital, Columbus, following amputation of the leg for diabetic gangrene.

John Lewis Van Tine, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1893; associate professor of materia medica at his alma mater; aged 68; died, January 14, of cerebral hemorrhage.

James Townley Upjohn, Kalamazoo, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886; formerly state senator; aged 77; died, January 18, of angina pectoris.

William Edward McCaleb ● Austin, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; past president of the Travis County Medical Society; aged 64; died, Dec. 28, 1935.

William H. Wenger, Washington, D. C.; College of Physicians and Surgeons, Baltimore, 1896; aged 66; died, January 29, of cerebral hemorrhage and cardiovascular renal disease.

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Clarence Alfred Hanson, Chicago; Loyola University School of Medicine, Chicago, 1926; member of the Illinois State Medical Society; aged 39; died, January 21, of coronary thrombosis.

William T. Rathbun, Colusa, Calif.; University of California Medical Department, San Francisco, 1892; member of the California Medical Association; aged 66; died, Dec. 28, 1935.

William Henry Hopwood, Smock, Pa.; Jefferson Medical College of Philadelphia, 1877; member of the Medical Society of the State of Pennsylvania; aged 82; died, Dec. 22, 1935.

Henry Irving Marsden, Somerset, Pa.; Medico-Chirurgical College of Philadelphia, 1898; member of the Medical Society of the State of Pennsylvania; aged 64; died, Dec. 20, 1935.

Ernest Kingsley McCown, Stanfield, Ore.; University of Louisville (Ky.) School of Medicine, 1925; served during the World War; aged 43; died, Dec. 19, 1935, of pneumonia.

James Henry Bogan ● Mackinac Island, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; aged 69; died, January 21, of pneumonia.

James T. Hammonds, Stanford, Ky.; Barnes Medical College, St. Louis, 1902; member of the Kentucky State Medical Association; aged 55; died, Dec. 17, 1935.

Sylvan Elzanie H. Rhodes, St. Louis; St. Louis College of Physicians and Surgeons, 1920; aged 35; died, January 7, in the Deaconess Hospital, of pneumonia.

Adah Epperson, Indianapolis; Northwestern University Woman's Medical School, Chicago, 1901; aged 59; died, January 15, of carcinoma of the stomach.

Matthew T. Love, Shelby, Ohio; Starling Medical College, Columbus, 1884; aged 76; on the staff of the Shelby Memorial Hospital, where he died, Dec. 23, 1935.

James Douglas Robertson, Brookline, Mass.; College of Physicians and Surgeons, Boston, 1894; aged 72; died, January 25, of hemiplegia and arteriosclerosis.

Goldsmith P. Robinson, Colorado Springs, Colo.; New York Homeopathic Medical College, 1877; aged 83; died, January 4, of carcinoma of the prostate.

Henry Clay Grubb, Linwood, N. C.; Temple University School of Medicine, Philadelphia, 1932; aged 29; died, February 10, of a self inflicted bullet wound.

Albert G. Grubb, Lagrange, Ind.; College of Physicians and Surgeons of Chicago, 1892; aged 73; died, January 12, of chronic nephritis and myocarditis.

Clyde Leslie Van Patten, Cedar Rapids, Iowa; Hahnemann Medical College and Hospital, Chicago, 1911; aged 48; died, Dec. 13, 1935, of pneumonia.

Jacob Darwin Pines, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1892; aged 75; died, January 7, of coronary occlusion.

Thomas Morris Strong, Boston; New York Homeopathic Medical College, 1871; aged 87; died, Dec. 17, 1935, in the Forest Hills Hospital.

Otto William Staib ● Bartlett, Ill.; College of Physicians and Surgeons of Chicago, 1888; aged 78; died, January 9, of coronary thrombosis.

Browder Gaines, Louisville, Ky.; Hospital College of Medicine, Louisville, 1906; aged 58; died, January 3, in Adairville, of lobar pneumonia.

Elmer E. Dunkelberg, Wolfcreek, Wis.; State University of Iowa College of Medicine, Iowa City, 1886; aged 74; died, Dec. 31, 1935.

Mansfield William Warner, Atlanta, Ga.; Meharry Medical College, Nashville, Tenn., 1914; aged 49; died, January 9, of pneumonia.

William Frederick Park, Amherstburg, Ont., Canada; University of Toronto Faculty of Medicine, 1893; aged 64; died, January 3.

Robert Harris Orr, San Francisco; University of California Medical Department, San Francisco, 1896; aged 60; died, Dec. 26, 1935.

Frederick Henry Kalbfleisch, Kitchener, Ont., Canada; Trinity Medical College, Toronto, 1888; aged 70; died, Dec. 13, 1935.

Theodore James Park, Amherstburg, Ont., Canada; University of Toronto Faculty of Medicine, 1879; died, January 1.

Isaac Newton Moyers, Speedwell, Tenn.; Tennessee Medical College, Knoxville, 1890; aged 76; died, Dec. 31, 1935.

Caroline Sophia Brown, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1900; aged 73; died, January 11.

Correspondence

TREATMENT OF MILK ALLERGY

To the Editor:—In his paper entitled "The Treatment of Milk Allergy and Its Basic Principles" (THE JOURNAL, Sept. 21, 1935) Dr. Bret Ratner makes several statements which either directly or by implication do not seem to be entirely in accord with fact. Since these statements concern investigations by us, we feel that a reply is necessary.

On page 934, Dr. Ratner says: "Moro and Bauer first described cases of marasmus due to milk intolerance and showed that this condition could largely be attributed to immunologic disturbances resulting from the entrance of milk protein into the blood stream. Schloss and Worthen and Schloss and Anderson in America amplified this concept."

In the paper quoted by Dr. Ratner, Moro found that blood taken post mortem from an atrophic baby contained a high titer of precipitin for cow's milk. A reasonably literal translation of Moro's comments on this case is as follows: The presence of intensely active *(wirksame)* precipitins allowed the conclusion that large amounts of milk protein must have passed through the intestinal wall into the blood stream at some time prior to death. He stated, however, that he was very unwilling to draw widespread conclusions from this one case and could not feel justified in concluding that the circulating cow's protein caused the atrophy or made it more severe. He expressed the opinion that it was much more likely that the atrophy and the increased permeability of the intestine for proteins were results of the functional gastro-enteric disturbance or of the excessive overfeeding or both. It is therefore very difficult to understand how any reader of Moro's paper can state that he described a case of marasmus due to milk intolerance.

Bauer discussed in some detail the then current opinion of some pediatricians that cow's milk protein could prove harmful to infants. He stated that for two years he had investigated the blood of infants artificially fed or suffering from gastro-enteric disease, with essentially negative results. He then described a positive precipitin test and positive complement fixation test for cow's milk protein in the blood of a 1,700 gram premature baby who had died after suffering from malnutrition and diarrhea. In commenting on his case, Bauer stated that he believed that he had proved conclusively the occurrence of foreign protein in the blood of an infant and that it remained for further investigations to determine definitely the pathologic significance of these results.

Here again one can hardly agree with Dr. Ratner that Bauer described a case of marasmus due to milk intolerance or that this case any more than that of Moro showed that marasmus "could largely be attributed to immunologic disturbances resulting from the entrance of milk protein into the blood stream."

The statement of Dr. Ratner that the investigations of Schloss and Worthen and of Anderson and Schloss amplified the concept which he, Dr. Ratner, attributed to Moro and Bauer carries the intimation that these investigations were merely confirmatory to those of Moro and Bauer and permitted the same conclusions. Let us examine the facts:

The investigation of Schloss and Worthen was merely a demonstration of the passage of egg or milk protein through the intestinal wall of infants suffering from diarrhea or severe malnutrition. In the summary and conclusions of their paper, Schloss and Worthen say: "These results demonstrate the possibility that certain nutritional disorders in artifically fed infants may be due to the biologic character of the food, although they obviously give no direct evidence to support such a view." Anderson and Schloss reported serologic evidence showing that cow's milk protein almost regularly entered

the circulation of marasmic infants fed on cow's milk. One of the most important differences in the results of their investigations from those of Moro and Bauer was dependent on technic. They found, as others, including Moro and Bauer had found, that satisfactory precipitin tests could not be carried out with ordinary milk, owing to its turbidity in even very dilute solution. Only very heavy precipitates could be detected. After experimenting with various preparations of cow's milk protein, Anderson and Schloss found that a commercial brand of dried fat free milk gave clear solutions in which slight precipitates could be detected readily. It was thereby possible to make repeated tests for precipitin in the blood of living marasmic infants over long periods of time in the attempt to relate the absorption of antigenic cow's milk protein to the nutritional state of the patient. Anderson and Schloss were able to demonstrate precipitin for cow's milk protein in the blood of eighty of the ninety-eight infants examined. We believe that this was more than a mere amplification of Moro and Bauer's postmortem demonstration of the enteral absorption of cow's milk protein by two infants who had suffered from marasmus in one case and diarrhea in the other. We also wish to emphasize that neither our results nor those of any one else have demonstrated a causal relationship between the enteral absorption of incompletely digested cow's milk protein and marasmus. Such absorption may be purely secondary or coincidental.

To the casual reader, Dr. Ratner's comment on the paper of Anderson, Schloss and Stuart in the last paragraph of page 936 might give the impression that he wishes to intimate that the experiments were performed with impure preparations of casein. In this paper investigations were reported demonstrating immunologic similarity of the casein of cow's, human and goat's milk, which as a matter of fact had been demonstrated before.

The preparations of casein were carefully isolated by the method of Van Slyke and Baker and were, we believe, pure. But even if these caseins did contain traces of whey protein, the conclusions would not have been altered. It is our belief that Dr. Ratner must have known this and that his reference to impure preparations did not refer to our experiments. We believe that he wished to imply that the statement in the opening paragraph of our paper that the immunologic relationship of the different caseins is of clinical importance must be wrong and that this belief on our part was probably due to the performance of skin tests with caseins contaminated with whey protein, despite the fact that in the paper of Anderson, Schloss and Stuart no reference whatever was made to such tests. Assuming that our interpretation of Dr. Ratner's meaning is correct, we wish to make the following comments:

We agree entirely with Dr. Ratner that the whey proteins are of paramount importance in idiosyncrasy to cow's milk and only with comparative infrequency is casein at fault; but what we do wish to take issue with him on is the insinuation that our belief that idiosyncrasy to casein may be of importance is due to the fact that we have been misled by tests with impure casein. We fully realize the danger of drawing erroneous conclusions by the use of contaminated test preparations, but we have from time to time carefully studied cases of idiosyncrasy to casein in which such criticism is patently invalid. Three cases will be cited briefly:

Case 1.—A breast fed baby, aged 3 months, developed eczema when he was 2 months of age. Scratch tests with a 1 per cent solution of casein in twentieth-normal sodium hydroxide caused very marked reactions, evidenced by wheals varying from 2 to 3 cm. in diameter. (This casein was prepared by precipitation with dilute acetic acid repeated washing of the centrifugated precipitate with distilled water, solution of the precipitate in a weak solution of sodium hydroxide and reprecipitation by acetic acid. Washing of the precipitate, solution by aid of sodium hydroxide and reprecipitation by acetic acid, as outlined, were carried out five times. The final precipitate was carefully washed with distilled water, centifugated, washed with alcohol and ether and dried in a current of warm air.) A 1 per cent solution of albumin from cow's milk gave on one occasion a negative scratch test and on two occasions equivocal reactions. (This albumin was prepared by first removing the casein from diluted cow's milk by precipitation with acetic acid. The filtrate was centrifugated to remove small particles of casein and the globulin precipitated by one-half saturation with ammonium sulfate. The albumin was thrown down by full saturation with ammonium sulfate. The resulting precipitate was purified by solution in distilled water and reprecipitation by saturation of the resulting solution with ammonium sulfate. This procedure was repeated three times. The final precipitate was dissolved in the smallest possible amount of distilled water, dialysed to remove ammonium sulfate, reprecipitated by pouring into a large volume of acetone, and dried in a current of warm air.) A scratch test with casein from goat's milk in 1 per cent solution caused a wheal 2 cm. in diameter. A 1 per cent solution of albumin (prepared by the same technic as outlined for cow's milk) from goat's milk provoked a slight erythema about 0.5 cm. in diameter but no wheal. It therefore seems evident that this patient showed cutaneous sensitivity to casein not due to contamination with albumin.

Case 2.—A boy, aged 2 years, was known to be sensitive to cow's milk. When cow's milk was ingested the patient usually developed slight urticaria around the mouth, at times generalized urticaria and on one occasion an attack of asthma. The symptoms were previously more severe than at the time when the patient was first seen. Scratch tests gave very marked reactions to cow's milk.

Marked cutaneous reactions were caused by scratch tests with a 1 per cent solution of casein. As a rule, an irregular wheal from 1 to 2 cm. in diameter surrounded by a zone of erythema occurred. Skin reaction to lactalbumin was much more intense than to casein. Usually the wheals were from 3 to 4 cm. in diameter and were surrounded by a wide zone of erythema. It so happened that the sample of casein used in these skin tests had been employed in other investigations and its purity was established by immunologic tests. These tests were briefly as follows:

One cc. of a 1 per cent solution of this casein was given to each of four guinea-pigs by intraperitoneal injection. Twenty days later the intraperitoneal injection of 3 cc. of a 1 per cent solution of cow's milk albumin did not cause anaphylactic shock, but an injection of 3 cc. of a 1 per cent solution of casein two days later caused severe shock.

This casein did not cause anaphylactic shock when given by intraperitoneal injection to three guinea-pigs sensitized nineteen days before the milk albumin. Their sensitization to milk albumin was demonstrated by the occurrence of shock when given an intraperitoneal injection of albumin from cow's milk two days later.

Although this patient was markedly sensitive to cow's milk albumin, it seems very clear that he was also sensitive to casein from cow's milk.

Case 3.—A baby, 3 months of age, had been entirely breast fed. Cow's milk was offered at this time as a supplementary feeding. Only about 30 cc. of 50 per cent dilution of cow's milk was taken. Within a few minutes he vomited. This recurred several times within an hour and soon severe diarrhea developed. Seven profuse, watery stools were passed within two hours and the baby showed moderate prostration. Similar symptoms appeared after each attempt to feed cow's milk even though as little as 20 cc. was taken. There were no cutaneous or respiratory manifestations. On two occasions, goat's milk caused the same disturbances. All skin tests to both cow's and goat's milk were negative.

In the attempt to determine the milk proteins that caused the reaction, the following experiments were made:

1. The ingestion of 5 cc. of a 1 per cent solution of the albumin of cow's milk caused severe gastro-intestinal symptoms. (This albumin was prepared by the same procedure as that used in case 2.)

2. The ingestion of 30 cc. of a 1 per cent solution of cow's milk casein that had been serologically tested and was of the

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same batch that caused vomiting and diarrhea in case 2. This test repeated five days later was followed by the same symptoms. It seems quite evident that this patient was sensitive to both albumin and casein from cow's milk.

In spite of Dr. Ratner's forceful expression of his views, we believe that we have sufficient evidence to warrant the conclusion that human beings can be allergic to pure casein from cow's milk.

OSCAR M. SCHLOSS, M.D.
ARTHUR F. ANDERSON, M.D.
New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

URTICARIA OF UNKNOWN ETIOLOGY

To the Editor:—A white man, aged 28, a service station attendant, first came to me on April 30, with a case of "hives." He had the first attack six years ago and another attack one year later, thereupon skipping two years before another attack occurred. On previous attacks "injections" were given by one of our leading dermatologists and the attack subsided. No result was obtained this time. The patient changed doctors and was given autohemic therapy (two injections in each arm). No change in the condition resulted for better or worse; he has been taking amytal and ephedrine and also phenobarbital with no result. He was tested for allergy and responded to nearly everything, but I do not believe that he had received any of the extracts. At first the wheals were large, measuring from 1½ to 2 inches in diameter. Now they are smaller, measuring perhaps one-half to three-fourths inch. They last only about half an hour and disappear. When new crops come out they usually come out in the same places as the previous ones and appear to be following a nerve. He has two that appear quite regularly, one in the bend of each elbow and one on the palmar surface of the left wrist. They change from white to red, itch and burn, are worse after a hard day's work with interrupted sleep and appear to be better, that is, are not so numerous or may not appear at all, if he has a good night's sleep. My first prescription for him was resorcinol 3 grains (0.2 Gm.) in sufficient water to dissolve, and tincture of nux vomica 2 drachms (7.5 cc.) in elixir of lactopeptin sufficient to make 4 ounces (120 cc.), to be taken in a dose of 1 drachm (4 cc.) every three hours. This was followed by improvement but from that time on nothing seems to have made any impression. He is now taking "A. M. S." solution (Raymer), which contains potassium arsenite, potassium chlorate, potassium sulfate and dilute hydrochloric acid. He takes this in 15 drop doses three times a day. There is nothing in his diet that seems to make any difference. He has eliminated eggs, milk, cheese, tomatoes, shell-fish and various other articles, but there has been no difference in his condition. He has noticed that playing golf seems to bring on an attack while he is playing. Any information you may be able to give will be greatly appreciated.

M.D., New York.

ANSWER.—It must be stated in the beginning that the determination of the etiology of a given case of urticaria by means of skin reactions is usually disappointing. Positive reactions of various kinds are usually found, because the individual with hives is usually an allergic individual. However, the antigens that give the positive reactions in a given patient are not necessarily the causative factors of the urticaria. It should be remembered that the materials causing the urticaria, particularly foods, may be ingested many hours before symptoms develop. Since that is the case, it should not be expected that applying such substances by means of skin tests will be followed by positive reactions within the comparatively short time during which a skin test is observed. Besides, the skin test affects the superficial skin layers, while hives are produced when the antigen reaches the lower skin layers.

The usual therapeutic measures for urticaria have been fairly well carried out in the patient under discussion. In some patients, symptoms are prevented by taking peptone mixtures half an hour before meal times. Elimination diets are sometimes successful.

It seems significant in the history that the patient's symptoms are aggravated by a hard day's work, interrupted sleep and playing golf. He is better after a good night's sleep. All this indicates that the patient's symptoms originate during physical effort, for instance, during golf and the exertion of a hard day's work, and that these manifestations are improved by rest. This agrees pertinently with Duke's contribution to physical allergy. He has demonstrated that many of the manifestations of allergy can be produced by hypersensitiveness to physical agents such as heat or cold. Allergy on the basis of heat or cold may reproduce in all particulars the manifestations of allergy due to foods, inhalants and pollens. This conception suggests that the patient should be acclimated to heat by alternate exposures to heat as from a heat lamp and cold by ice rubs, the process being repeated several times and the treatment being carried out daily.

CHRONIC GONORRHEAL INFECTION

To the Editor:—A married man about 30 years of age, contracted a gonorrheal infection four years ago. He went to his doctor, who diagnosed it as mentioned. Treatment consisted of tablets and capsules by mouth, and solution for home irrigation. The discharge ceased after a few weeks. The following September the discharge again appeared, as it has done every September since the original infection. Last September was my first contact with the patient. The discharge looked to be quite typical but the state laboratory returned a consistent negative. However, under National Drug Neisser Combined Vaccine the trouble cleared. Now for the third successive September the discharge has appeared—a rather thick, yellow, nonmucous secretion. I have sent smears to the state laboratory and plan to send at least three. He states that there has been no infection other than the primary one. Of course my impression is that the condition is a chronic gonorrheal infection. Is this reasonable? Assuming this diagnosis to be correct, what is the latest accepted treatment? How can the annual September flare up be accounted for?

HARRY W. PERRIN, M.D., Lisbon, N. H.

ANSWER.—The assumption that the patient in question is suffering from a chronic gonorrheal infection may be correct. The exact method of examination of the discharge is not stated. Recent experience has shown that cultures obtained from the urethral discharge, when the material is obtained with proper precautions, are accurate in more than 90 per cent of cases. The result of such a culture would therefore be of great value in this case, since smears frequently are negative when cultures are positive.

It would be logical to assume that there is a chronic prostatic infection present, which is keeping up the recurring discharge. A study of the prostatic secretion should be made, as well as a urethroscopic examination and a thorough search for foci in the teeth and tonsils.

In case evidence of prostatic infection exists, the usual treatment, consisting of vigorous prostatic massage and instillations into the deep urethra, usually brings good results. An abscess associated with first infection of the prostatic ducts may be a factor. In the hands of most observers, vaccine has not been found to be of great therapeutic value. In case of persistent gonorrheal infection hyperpyrexia, particularly with the Simpson-Kettering apparatus, may be indicated. This form of treatment has been highly successful in clearing up persisting infection with Neisseria gonorrhoeae.

The seasonal recurrence of urethral discharge is frequently observed and is difficult to explain. However, there must be individual rather than climatic factors present to account for it.

LIMBER NECK AND POLIOMYELITIS

To the Editor:—Can the disease in fowl commonly known as limber neck be transmitted to man? If so, is the result similar to acute poliomyelitis? I have seen demonstration of transmission from fowl to small animals with resulting paralysis of their hind limbs. From this I had the impression that the two diseases were identical and on this ventured a prediction that a family of children having played in a chicken yard in which limber neck existed would become afflicted with the disease. I wasn't surprised when after a few weeks three of the children developed infantile paralysis. Since then I have seen another case of the disease in a young girl and on investigating found chickens with limber neck in a neighbor's yard. It is difficult for me to believe that this experience will have to be explained as a matter of coincidence. I should like to know whether it has been definitely established that they are two distinct diseases.

GUSTAV LUDWIGS, M.D., East St. Louis, Ill.

ANSWER.—Limber neck is a condition commonly seen in chickens; it is characterized by a paralysis with a peculiar weakness of the neck muscles and is due to the botulinus toxin.

Graham, Brueckner and Pontius (Bull. 207, Kentucky Agricultural Station, June 1917) have reported a number of outbreaks of so-called Forage poisoning or cerebrospinal meningitis of horses due to the toxin of Clostridium botulinum. It was further shown that the toxin of one type of Clostridium botulinum causes cases of limber neck in chickens. Chickens are readily susceptible to the toxin of the type A organism, developing limber neck, but they are refractory to the type B toxin. Clostridium botulinum is widely distributed in nature and is found chiefly in the soil, in the feces of hogs, in moldy hay, and in damaged fruits and vegetables. Type A organisms are more frequently found in the western part of the United States and type B in the eastern part.

Epidemiologic evidence from time to time has seemed to implicate animals in the spread of some of these infections. Poliomyelitis has been associated in various reports with dogs,

cats, chickens and colts. T. G. Hull (Diseases Transmitted from Animals to Man, Springfield, Ill., C. C. Thomas, 1930, p. 247) investigated an epidemic of paralysis among hogs on a farm where two children were sick with poliomyelitis, but histologic examination of the spinal cord of the hogs revealed no evidence to indicate that the disturbance was poliomyelitis. In another instance the examination of the colts proved that the paralysis was apparently due to a nutritional deficiency. W. H. Frost (Bull. 90, Hyg. Lab., U. S. P. H. S., 1914) investigated the connection of paralyzed dogs, chickens and rabbits with the epidemics of poliomyelitis in Iowa in 1910 and in Cincinnati in 1911 but found no evidence to support the contention that such animals were suffering from the disease or acting as carriers.

From the foregoing it is apparent that the paralysis in chickens is due to the botulinus toxin and is independent of the paralysis due to poliomyelitis seen in children. However, it is possible that a paralysis in children simulating poliomyelitis may be due to the same toxin that is producing the paralysis in chickens or the so-called limber neck.

GASTRO-INTESTINAL ABSORPTION—ABSENCE OF PAIN IN ULCER WITH ACHYLIA

To the Editor:—I would appreciate reference information as to research work done on the following subjects: 1. Shortages of resorption of products of digestion in either health or disease. 2. Why is an achylic stomach with an ulcer free from pain?

Arthur A. Kirchner, M.D., Los Angeles.

Answer.—1. There has been such extensive literature published on "absorption from the gastro-intestinal tract during health and disease" that it is possible to cover the subject but briefly in these columns.

Following the observations of Beaumont (Experiments and Observations on the Gastric Juice and the Physiology of Digestion, Plattsburgh, 1833) that gastric acidity decreased with infection or fever, patients were starved as a rule. In 1912 Eugene F. Du Bois (The Absorption of Food in Typhoid Fever, *Arch. Int. Med.* **10**:177 [Sept.] 1912) confirmed work published previously by the Russians and demonstrated the advantages of a high caloric and nutritious diet for typhoid patients. This changed the previously accepted dictum of "starve a fever" and stimulated study of gastro-intestinal absorption under varied conditions. The following references are submitted as a preliminary bibliography:

Bliss, M. A.: The Influence of Mind on Digestion, *Psychotherapy* **3**: 48, 1909.

Thompson, W. G.: Practical Dietetics, with Special Reference to Diet in Disease, New York and London, D. Appleton & Co., 1909, p. 934.

Bichel, A.: Ueber die Grundlagen der Diatetik bei Verdauungskrankheiten, *Med. Klin.*, 1910.

Lusk, Graham: The Elements of the Science of Nutrition, ed. 2, Philadelphia and London, W. B. Saunders Company, 1909.

Arany, S. A.: The Assimilation of Carbohydrates in Health and Disease, *Med. Press & Circ.* **89**: 330, 1910.

Keller, W.: Ueber enterale Resorption, *Klin. Wchnschr.* **11**: 853 (May 14) 1932.

Babkin, B. P.: Die äussere Sekretion der Verdauungsdrüsen, Berlin, Julius Springer, 1928.

Levine, V. E.: Science of Nutrition, Application to Clinical Medium, *Nebraska M. J.* **15**: 147 (April) 1930.

Childrey, J. H.; Alvarez, W. C., and Mann, F. C.: Digestion: Efficiency with Various Foods and Under Various Conditions, *Arch. Int. Med.* **46**: 361 (Sept.) 1930.

Bloomfield, A. L., and Polland, W. S.: Gastric Anacidity, Its Relations to Disease, New York, Macmillan Company, 1933.

Alvarez, W. C.: The Mechanics of the Digestive Tract, ed. 2, New York, Paul B. Hoeber, Inc., 1928.

Bridges, M. A.: Dietetics for the Clinician, Philadelphia, Lea & Febiger, 1933.

Alvarez, W. C.: Nervous Indigestion, New York, Paul B. Hoeber, Inc., 1931.

2. The causes of ulcer pain are not completely understood as yet. Alvarez (The Mechanics of the Digestive Tract) summarizes the more commonly accepted theories as follows:

Carlson (Contributions to the Physiology of the Stomach: The Origin of the Epigastric Pains in Cases of Gastric and Duodenal Ulcer, *Am. J. Physiol.* **45**:81 [Dec.] 1917) believes that an increased sensitivity of the nerve endings changes the normal hunger contraction distress to the pathologic hunger pains associated with ulcer.

Palmer (The Mechanism of Pain in Gastric and Duodenal Ulcers, *Arch. Int. Med.* **38**:603 [Nov.] 1926) concludes that in 90 per cent of the patients the chemical irritation (hydrochloric acid) is the only factor producing the ulcer distress; in the remaining 10 per cent muscular contractions may be a factor.

Ivy (Contributions to the Physiology of the Stomach: The Causes of Gastric Secretion, Their Practical Significance and the Mechanisms Concerned, The Journal, Sept. 19, 1925, p. 877) theorizes that the intermittent type of ulcer pain is probably due to peristalsis or local spasm occurring at the site of the ulcer in muscle of changed tonicity. The continuous type of distress is due to congestion, edema and inflammatory reaction about the ulcer, all of which lower the threshold for stimuli. The rôle of the acid is to irritate the nerves and to increase the edema about the ulcer.

With these theories as a basis, it may be concluded that there would be no ulcer pain in achlorhydric ulcer patients because acid irritation would be absent.

SENSITIVITY TO PHOTOGRAPHIC SOLUTIONS

To the Editor:—Please let me have any available literature on dermatitis resulting from contact with elon-hydroquinon, chrome alum hardener and acid hardening fixing bath used in the developing of photographic plates. The solutions used in the case under discussion were:

1. Elon-hydroquinon developer:

Water	1.5 liter
Elon	3.1 Gm.
Hydroquinon	5.9 Gm.
Sodium sulfite	90.0 Gm.
Sodium bisulfite	2.1 Gm.
Sodium carbonate	11.5 Gm.
Potassium bromide	1.7 Gm.
Borax	8.0 Gm.

2. Chrome alum hardener:

Water	4 liters
Potassium chrome alum	120 Gm.

3. Acid hardening fixing bath:

Water	2 liters
Sodium thiosulfate	480 Gm.
Sodium sulfite	30 Gm.
Acetic acid	96 cc., 28% pure
Potassium alum	30 Gm.

The patient working in these solutions with unprotected hands first noticed a rash on the hands and forearms. The rash rapidly spread to the rest of the body and was accompanied with severe itching. The rash resembles that of pityriasis. Aften ten days the rash is fading and the hands and fingers are scaling extensively.

James L. Hackett, M.D., Emporium, Pa.

Answer.—Sensitization to almost any substance can occur and almost any of the ingredients mentioned may be suspected; but most of them are rarely troublesome, so that they are not likely suspects. Of elon, a brand of metol, and of hydroquinone no such kind words can be said. They should be suspected and tested first. Make a patch test by wetting a small piece of absorbent cotton in a solution of two parts of elon to 1,000 parts of water, place it on apparently normal skin of the patient, cover it with gutta percha, oiled silk or oiled paper, and fasten with adhesive tape. Make a similar patch test with hydroquinone, four parts per thousand parts of water. The same may be done with any other ingredient that may be suspected, using about the strength in which it is present in the mixture. Allow these to remain for forty-eight hours unless marked itching or burning develops in a shorter time. Remove the patches and read the results. A decided dermatitis under the pledget of cotton is recorded positive. Dermatitis under the edges where the covers touched the skin, or under the adhesive tape, indicates sensitization to these substances.

If any of the ingredients of the developing or hardening baths give a positive reaction, it must be tested again. A second positive reaction indicates the offender.

Because metol is so often the cause of such a dermatitis, kodelon, *p*-amino phenol oxalate, a substitute recommended by the Eastman Kodak Company, the makers of elon, may well be tested at the same time in the hope that it will be found nonirritating. The metol-hydroquinone developer is so much better than most others that photographers will try in many ways to continue its use, even though they are sensitized to it.

Bathing the hands frequently in 10 per cent aqueous acetic acid solution or rubbing them several times a day with a mixture of 32 parts of 28 per cent acetic acid, 16 parts of table salt and 64 parts of water is said to act as a preventive. Covering the hands with a thin film of ointment, paraffin or collodion has been tried with only partial success. The covering is imperfect and often makes trouble by smearing the films. For severe cases, rubber gloves may be necessary. After removing them, the application of 10 per cent acetic acid solution, or a 0.5 per cent solution of salicylic acid in 50 per cent alcohol may be helpful.

Freund (Prevention of Photographer's Dermatitis, *Wien. klin. Wchnschr.* **46**:41 [Jan. 13] 1933) mentions the difficulties and uncertainties of these methods and suggests instead of them a loop of string at two adjacent corners of the film. The technician handles the film by these loops, fastens them to a post on the especially made tray to keep them dry, and hangs

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the film for drying by one of these loops. The author pictures and describes a mechanical device which he claims makes possible the formation of such loops very quickly, even in darkness. It is a simple and inexpensive method and deserves trial.

Treatment is not practical so long as exposure is repeated. After thorough rinsing in an acid solution, solution of aluminum acetate may be applied as a cool, wet dressing. The Eastman company recommends a bath of 100 parts water and two parts each of potassium permanganate and concentrated sulfuric acid. After this the stain may be removed with a solution of 2 per cent oxalic acid in water.

POSSIBLE RAYNAUD'S DISEASE

To the Editor:—A woman, aged 39, has what I am quite certain is early Raynaud's disease. The hands become painful and white when suddenly exposed to cold or immersed in cold water. The nails of the middle and ring fingers of both hands appear dark, dull and lifeless and have not had to be cut for about three months. The nails of other digits grow very slowly. The patient is in excellent health in other respects. I should like to know the latest and best treatment. How about foreign protein therapy or cervical sympathectomy? Kindly omit name.

M.D., Michigan.

ANSWER.—The diagnosis of Raynaud's disease in this case is open to some doubt. The attacks of ischemia on exposure to cold are typical of this disease. However, usually between the attacks the fingers are normal in appearance and in texture and in finger-nail growth. The fact that the patient is a woman favors the diagnosis of a vasospastic disorder rather than a diagnosis of organic occlusive disease of the vessels of the hands. It would be important to determine whether pulsations of both ulnar and radial arteries are present. If these are open, and if exposure of the hands to warmth restores them to a fairly normal condition, a diagnosis of Raynaud's disease would be tenable. If restoration does not occur, one would suspect organic closure of the digital arteries. The patient seems too young to have arteriosclerosis obliterans. Thrombo-angiitis obliterans is extremely rare among females. Embolic occlusion would have to be ruled out. If the condition is progressive, causing disability, sympathetic ganglionectomy would probably offer the best chance of ultimate relief. If surgical operation is not advisable, contrast baths, postural exercises, protection of the digits, injection of foreign protein and fever therapy might be used.

CEREBROSPINAL SYPHILIS

To the Editor:—A white man, aged 40, contracted syphilis six months ago. He received eight injections in the arm and none in the hip. He was then instructed to rest for six weeks. I saw him toward the close of this rest period for the first time. He had had a severe headache for several days. Examination showed a secondary optic atrophy. The spinal fluid was under greatly increased pressure and was clear; it contained 24 cells per cubic millimeter, mostly small lymphocytes, and showed a positive Pandy, a one plus Kahn and a one plus Wassermann reaction. The blood Wassermann reaction was two plus and the Kahn two plus. The patient had gonorrhea about ten years ago. No blood tests were taken then. Is it possible that his present cerebrospinal syphilis is a result of an internal chancer at the time of the gonorrhea or is it more likely a recent infection with inadequate treatment? I started him on mercuric succinimide intramuscularly, one-fifth grain (0.013 Gm.) three times a week. Do you think iodides are indicated simultaneously or would you wait and how long? When do you think it would be safe to start neoarsphenamine or do you believe tryparsamide would be better? I was planning a course of twenty injections of mercuric succinimide, one-fifth grain three times a week, then bismuth salicylate, 2 grains (0.13 Gm.) twice a week for twelve injections and then ten injections of neoarsphenamine, starting with 0.15 Gm. and gradually increasing every five days. He has high myopia and an ophthalmologist will determine his visual fields shortly. How often do you think it necessary to recheck his visual fields? Would iodobismitol be better than bismuth salicylate? Kindly give prognosis. Please omit name.

M.D., Illinois.

ANSWER.—The symptoms seem to indicate that there was an invasion of the central nervous system during the secondary stage of the patient's syphilis. One must assume that there has been inadequate treatment and institute intensive antisyphilitic therapy. Iodides should be used simultaneously, preferably in the form of intravenous sodium iodide. It is far better to use neoarsphenamine than tryparsamide in this type of syphilis. Bismuth salicylate is perhaps better than iodobismitol. It is quite likely that the disk changes are not due to secondary optic atrophy but to myopia.

The visual fields need not be regularly checked unless tryparsamide is used.

The prognosis cannot be determined this early, but active treatment at the present time would insure the best possible chances for the prevention of the severe tertiary neurosyphilis.

IDIOPATHIC HYPERTENSION IN PREGNANCY

To the Editor:—Three months ago a multipara, aged 26, came to me for antepartum examination. The last menstrual period was March 15. There are no present complaints. The patient has been feeling well since the last period. She had chickenpox in childhood but no other diseases or serious illnesses. She has been subject to occasional attacks of nausea and vomiting, associated with headache since early childhood, but these were of short duration. The first pregnancy was four years ago. When examined first in the early months of pregnancy her physician mentioned that her blood pressure was high, she thinks around 180. No treatment was instituted, however, and pregnancy continued normally with no abnormal symptoms. She was delivered spontaneously at term after about eight hours of labor. Her health was good until the second pregnancy two years ago. During this time she had occasional attacks of headache and malaise but did not consult a physician until the end of the eighth month, when vaginal bleeding was followed in a few hours by stormy labor pains. The bleeding and pains continued for about twelve hours, when she was delivered of a dead fetus by forceps. Her health has been good until the present time. Examination, when the patient was first seen, showed the blood pressure to be 210 systolic, 120 diastolic. The heart was slightly enlarged to the left. A blowing systolic murmur was heard at the base and the apex. The heart rate was 90. There was no swelling of the ankles and there were no visual disturbances. The twenty-four hour urine showed a volume of 40 ounces; color, light straw; specific gravity, 1.020; albumin and sugar, negative. Blood count and hemoglobin were normal. The patient was put to bed for two weeks and given three quarts of milk each twenty-four hours, orange juice and viosterol. At the end of two weeks the blood pressure was 190/120. She was allowed to be up about the house for about two hours a day and instructed to take a low protein and low salt diet. The blood pressure slowly rose to its original level in three weeks. She was put back to bed and allowed up only for meals. A low protein diet was continued. The bowels were kept regular with liquid petrolatum and milk laxatives. Bismuth subnitrate was given in a dosage of one teaspoonful of the powder twice daily. The patient continues to feel well except for an occasional headache followed by vomiting, which promptly relieves it. The twenty-four hour output of urine averages around 66 ounces; albumin and sugar are negative, with an occasional hyaline cast. The specific gravity remains around 1.020. The occasional headache is described by the patient as feeling as if the head was too full. The blood pressure remains from 200 to 210/120. There is still no swelling of the ankles, dizziness or visual disturbances. Blood chemistry has not been done. I would appreciate your suggestion as to further treatment and the prognosis of this case. If eclampsia does not come on before the onset of labor I am afraid that increased blood pressure during labor may cause a cerebral hemorrhage.

M.D., Arizona.

ANSWER.—The patient evidently suffers from a condition that is being called, for the want of a better name, idiopathic hypertension, and in all probability a chronic cardiovascular disease is at the root of her trouble. The pregnancy seems to aggravate the existing condition and probably the patient is shortening her life by repeated gestations. The toxemia and premature labor of her second pregnancy, which probably ended with abruptio placentae, confirm these suspicions. Many accoucheurs would empty the uterus in such a case as this, regardless of the period of development of the fetus, in order to prolong the woman's life. Recommendations for this particular case are absolute rest in bed, stimulation of diuresis by means of 250 cc. doses of 25 per cent dextrose intravenously, and a diet without any salt whatever and consisting of fruit juices, nonprotein vegetables and cereals; with from 25 to 30 Gm. of animal protein daily. When the child is viable a low or cervical cesarean section should be done under local anesthesia, with Madlener's method of sterilizing the patient—crushing and ligation of the tubes.

RELIEF OF SYMPTOMS AT MENOPAUSE

To the Editor:—A woman, aged 35, the mother of one child, had both ovaries removed on account of cysts. I anticipate menopausal symptoms and wish to know what treatment you would advise to prevent this. Will she experience any sexual sensation? Do not mention name.

M.D., Oklahoma.

ANSWER.—Most women who have symptoms of the menopause can be relieved of some of their distressing disturbances. Some women can be relieved of all their symptoms, whereas other women are refractory to all treatment. The product that is helpful for most women who are in the menopause is estrogenic substance. The commercial preparations of this product are known by such names as theelin, amniotin, progynon and menformon. The best way to administer the substance is by hypodermic injection deep into the muscle (the gluteus muscle preferably). These products can also be administered by mouth but the dose must be five times as great as when given intramuscularly. It is best to start with hypodermic injections of about 200 rat units every second day. After a number of injections have been given, the physician should increase or decrease their frequency and strength, depending on the effect the substance has on the disturbing symptoms. In nearly all cases in addition to the estrogenic substance it

is advisable to prescribe a mild sedative such as the bromides or phenobarbital. Many women who undergo the menopause retain their sex desires and sex gratification, whereas others lose it temporarily or permanently. If a woman broods over this or over the change of life in general, a few intimate conversations concerning a more optimistic view on life may prove helpful.

TREATMENT OF VARICOSE VEINS WITH ULCERS

To the Editor:—In the treatment of varicose veins, Unna's paste has been a standard remedy for many years. The directions for applying this paste state that it "should be applied the entire length of the veins" and that "the paste should also be spread over the ulcerated regions, unless there is too much 'weeping' from the ulcer or ulcers." Of course, the beneficial effect of the paste on an ulcer from which there is no great amount of fluid discharging appears obvious, while the use of an elastic bandage, such as is put over the paste and the gauze covering the paste, can also be understood as a useful procedure; but of what benefit is it to apply the paste "along the entire course of the vein" when over its greatest length there are no ulcers nor any suggestion of an ulcer likely to develop? Also, when an ulcer is "weeping excessively" so that the Unna's paste cannot be applied over it, what is the "theory" underlying the benefit that accrues to the ulcerated regions, when only the non-ulcerated regions are covered with the paste? Also, when it is intended to institute obliterative treatment, is it necessary to wait until all ulcers are healed before the treatment can be started? I know that there are a great many solutions recommended for injection in "obliterative treatment" and I have used a mixture of magnesium sulfate and sodium chloride with quite good results in all except one case out of a series of six, the case that showed unsatisfactory results being one in which there were badly twisted veins, which I finally had to ligate. As my experience with these cases was quite concentrated, all within a short time and about four years ago, may I ask whether in the meantime any other substance or substances besides the mixture mentioned and the often mentioned quinine and urea hydrochloride has been proved more and sufficiently often successful that such may be considered a standard treatment in the light of present knowledge.

M.D., Illinois.

ANSWER.—The correspondent would be interested in a pamphlet issued by the Committee on Varicose Veins of the American Medical Association based on the material shown at the Scientific Exhibit in Philadelphia. Unna's paste must be applied from the toes to the knee in every case. It affords elastic support to the dilated veins, prevents back pressure and protects the limb from too much edema. Ulcers below veins with incompetent valves heal much faster when the stagnating column of blood is held back by the even pressure of a bandage or boot. When the ulcer is acutely inflamed or when secretion is active, it is wise to apply several layers of gauze or a marine sponge over the ulcer, not only for even pressure but also to dispose of the secretion. In such cases the boot may have to be exchanged every four or five days until the secretion diminishes. The injections may be started, unless another contraindication exists, in the presence of an open ulcer provided there are no signs of lymphangitis or periphlebitis. The decision when to start treatment requires experience, and a few visits to some large teaching clinic are recommended. For obliterating injections, sodium morrhuate and potassium oleate have proved satisfactory; their only drawback is the occasional development of hypersensitivity to the drug resulting in urticaria, edema and sometimes a serious anaphylactoid reaction.

ASYMPTOMATIC UNDULANT FEVER

To the Editor:—In routine blood tests of the resident population, a number of laboratory reports received indicate undulant fever in dilutions of from 1:100 to 1:1,000. All these patients have varying stages of pulmonary tuberculosis but are symptomless, so far as can be determined, for undulant fever. Will you please advise me regarding the significance of the test in this connection, whether the presence of these patients in a group would make it inadvisable to retain them, and what treatment, if any, should be employed?

ROBERT M. DEWING, M.D., Glencliff, N. H.

ANSWER.—Subclinical or asymptomatic infections frequently occur following ingestion of raw milk containing Brucella organisms or after direct contact with infected animals. C. M. Carpenter, Ruth Boak and O. D. Chapman (*J. Immunol.* **17**:65 [July] 1929) have submitted convincing evidence that anti-abortus agglutinins develop only when there has been actual invasion of tissues by living Brucella organisms. There is no evidence that agglutinins are absorbed passively in the intestine from pasteurized milk containing killed organisms. Unless the history reveals evidence of symptoms compatible with a diagnosis of undulant fever it is quite likely that these patients belong in the asymptomatic or subclinical group. There is no evidence that the disease is contagious from man to man. Several investigators have reported the successful use of Brucella melitensis (abortus) vaccine therapy in the symptomatic form of the disease.

RECURRENT ERYSIPELAS OF LEG

To the Editor:—A married woman, aged 44, had an attack of erysipelas in her right leg eight years ago. Two or three years later she had a second attack. These attacks have gradually come closer and closer together until within the last year she has had seven attacks. A roentgenogram of the leg shows the bone perfectly normal. All her teeth have been roentgenographed, her tonsils are innocent, the sinuses are clear, pelvic examination is negative, and I am unable to find any foci of infection. The urine is normal. Menstruation is regular but comes every twenty-four days. Have you any suggestions as to the prevention of future attacks? I have thought of making a culture from a blister should one ever develop, with the idea of making a vaccine, but so far in none of the attacks have blisters been present, and I did not feel that a culture made from the skin itself would be reliable. Treatment of each attack has been by the use of epsom salt compresses, and such symptomatic treatment as was indicated.

WINGATE M. JOHNSON, M.D., Winston Salem, N. C.

ANSWER.—Recurrent erysipelas of the leg has most frequently as the nidus of infection an Epidermophyton infection about the toes, and in order to prevent recurrence it is necessary for the usual treatment to be applied for such infections. Vaccines are of little use, but immunization by means of erysipelas toxin has proved of value.

CHRONIC EDEMA OF ANKLES

To the Editor:—About two years ago Miss D., who does considerable tap dancing, noticed that after strenuous dancing her left ankle would swell with pitting edema. This would disappear after eight hours' rest in bed. The patient, now 18, is healthy, has never had any serious illness, and so far as I can see shows no evidence of organic disease. About a year ago she entered the clinic of a local orthopedic hospital for treatment and diagnosis. Entire physical, including pelvic, examination was negative, as were roentgenograms of the left leg. After about eight months' attendance at the clinic she became convinced that the line of treatment employed—heating and massage, especially—was not productive of results and I was consulted. When first seen, about two weeks ago, the ankle was slightly swollen but not tender and the patient did not walk with any demonstrative limp. My suggestion to her was that perhaps as long as two years ago she had a thrombophlebitis of the deep vessels of the leg and the proper line of treatment was to get off the foot and stay off. This she agreed to do and I fixed up a wire tent with an electric bulb within to supply heat and I have kept this on at all times. She has been wearing woolen ski socks in conjunction with the external heat. One week ago, while I was on a trip, she reports that the ankle "ballooned" up and has not been free from swelling since. Today there is pitting edema over the dorsum of the foot but none above the ankle, this of course being after she has been off the foot for two weeks. My impression of this case is that it is an old thrombophlebitis of the deep vessels. If so, is not two years a long time for her to have symptoms? How could this be treated except by rest in bed and external heat? Are there any other possibilities that suggest themselves to you? Any help you may give me will be very acceptable. Please omit name.

M.D., New Jersey.

ANSWER.—Unilateral pitting edema of the lower extremity that is relieved by horizontal or elevated position suggests deep venous obstruction. Should there be a cyanotic hue and the appearance of collaterals when the edema is not present, the diagnosis is more certain. The gradual painless onset, however, in the absence of any history of operation or infectious disease, may speak for lymphatic obstruction due to a chronic obliterative lymphangitis. Sometimes both venous and lymphatic factors are present. If the temperature, white count and sedimentation rate are normal, the presence of active infection may be excluded. The principles of treatment are first to get rid of the edema and second to prevent the fluid from reforming, as long continued edema leads to a fibrosis and hypertrophy of connective tissue. Elevation of the limb to an angle of approximately 30 degrees over night helps to get rid of the fluid; should some remain, from 4 to 6 Gm. of ammonium chloride, followed on the third day by 1 cc. of salyrgan, readily mobilizes the residual edema, provided it still pits and there are no irreversible changes in the tissues. To keep the fluid out of the limb so deprived of edema, water is restricted to 1,000 cc. daily and no additional table salt is allowed. Five grams of potassium chloride may be prescribed and used instead of table salt. An elastic hose of the "Lastex" type is ordered from toes to the midthigh or even to the groin, should the swelling extend to that level. Exercise and walking are not prohibited, as the contraction of muscles facilitates venous and lymphatic return; but standing in one position or even sitting in one position without elevating the limb tends to increase edema. The prognosis as to cosmetic results is quite guarded. If the obstruction is venous, the circulation is apt to improve, but with the diminution of the edema collateral veins may become visible. If the obstruction is lymphatic, the edema may gradually increase in spite of all conservative treatment. In such cases, radical surgical procedures that aim to drain lymphatic retention into nonaffected areas are justifiable.

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OFFENSIVE DISCHARGE IN FEMALE

To the Editor:—I have a patient, aged 37, married, who has one child, aged 13, and has had two abortions since the birth of the child. Two years ago she had an ectopic pregnancy and operation revealed the left tube ruptured. The left ovary and tube were removed, supravaginal hysterectomy was done on account of small fibroids in the fundus of the uterus, and about 1 inch of the cervix was left; it was cauterized because of some erosion. The health of the patient has been good since the operation but she has a disagreeable vaginal discharge, which has a very offensive odor, while examination shows the remaining portion of the cervix in apparently healthy condition, as well as the vaginal membranes. Every kind of douche has been used, I think, in an attempt to destroy the odor, all with little or no results. The patient menstruates regularly on a twenty-eight day cycle, with a small amount of flow for three or four days. There seems to be no definite time at which the discharge and odor are most aggravating. Treatments of the cervix with silver nitrate and antiseptics help a little, as do daily douching with soda or copper sulfate. Will you please suggest further treatment and the possible cause of this odor? The patient has never had any venereal disease. If published, please omit name.

M.D., Indiana.

ANSWER.—A bacteriologic study of the discharge should be made, including examination of fresh material for trichomonads. If infection with a specific organism is not evident, the persistent discharge is probably ascribable to a cervical pocket that does not drain. A search for pockets can be made in the office without causing the patient undue discomfort. The cervix is grasped with volsellum forceps and the finest Hegar dilator is used as a searcher within the cervical canal.

In the event that there is neither evidence of a specific infection nor pocketing interfering with drainage, vaginal removal of the cervical stump is the procedure of choice.

DETACHMENT OF RETINA

To the Editor:—Will you please give me information regarding prognosis and treatment of detachment of retina. Kindly omit name.

M.D., Alabama.

ANSWER.—Up to six years ago the visual prognosis in detachment of the retina was uniformly bad, there being practically 100 per cent total loss of vision. But since the advent of surgical intervention as advocated by Gonin, the outlook has changed entirely. The prognosis for ultimate vision varies according to the length of time the detachment has existed, the cause of the detachment, and the portion of the retina affected. Under favorable conditions, vision has been restored in as high as 70 per cent of the cases. But considering all cases except those that from the outset look hopeless, the number of recoveries may be estimated conservatively at around 40 per cent.

Except in the detachments of pregnancy, the treatment is entirely surgical. The main methods are (1) the Gonin method of thermocautery through a scleral puncture (now practically abandoned), (2) the Guist method of chemical cautery through a scleral puncture (now reserved for only certain unusual cases), (3) the Safar or Walker method of diathermy coagulation by individual platinum pins inserted into the sclera, (4) the Weve method of diathermy coagulation by repeated introductions through the sclera of a single needle, and (5) the Larrsen (modified by Coppez) method of superficial coagulation of the sclera by diathermy. All the methods aim at the closure of the retinal hole that is supposed to exist in every case and at the production of inflammatory areas in the choroid to which the retina becomes adherent, thus holding it in place. In reality our knowledge of the modus operandi of the surgical treatment of retinal detachment is still in its infancy.

ASYMPTOMATIC NEUROSYPHILIS

To the Editor:—Please advise me in the following case: A man, aged 40, was infected with syphilis in 1930. In 1932 he had his first course of eleven treatments each of a bismuth compound and neoarsphenamine. In 1934 he had two more full courses of a bismuth compound and neoarsphenamine. The blood Wassermann reaction at that time was 3 plus. He has had one more full course, the fourth this year of a bismuth compound and tryparsamide. The blood Wassermann reaction is now 2 plus. To my amazement a test of the cerebrospinal fluid revealed a Wassermann reaction 2 plus, Kahn reaction 4 plus, globulin 4 plus, and colloidal gold and colloidal mastic both weakly positive. The patient is symptomatically free and apparently in perfect health. Should he have further treatments of tryparsamide or a course of fever treatments or should I be content with the occasional course of the bismuth compound? Please omit name.

M.D., Ontario.

ANSWER.—This man appears to have an asymptomatic neurosyphilis. Several additional courses of tryparsamide with proper visual control, alternating with a preparation of bismuth or mercury, should be given before administering fever therapy. If the spinal fluid continues positive, the latter procedure may be considered.

Council on Medical Education and Hospitals

INTERNSHIPS FOR GRADUATES OF FOREIGN MEDICAL SCHOOLS

Because many graduates of European universities and medical schools are applying for internships in this country, the Council on Medical Education and Hospitals at a recent meeting voted "that when suitable graduates of class A schools of the United States and Canada are not available, hospitals approved for intern training may accept graduates of European schools who have passed parts I and II of the examinations of the National Board of Medical Examiners."

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ARIZONA: Phoenix, April 7-8. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

COLORADO: Denver, April 7. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Endorsement.* Hartford, March 24. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

HAWAII: Honolulu, April 13-16. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDAHO: Boise, April 7. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, April 7-9. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

IOWA. *Basic Science.* Des Moines, April 14. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

MINNESOTA: *Basic Science.* Minneapolis, April 7-8. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, April 21-23. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 7. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEW MEXICO: Santa Fe, April 13-14. Sec., Dr. E. LeGrand Ward, Sena Plaza, Santa Fe.

RHODE ISLAND: Providence, April 2-3. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

WISCONSIN: *Basic Science.* Madison, April 4. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* May 6-8, June 22-24, and Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Oral examination for Group A and B applicants* will be held in Kansas City, Mo., May 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B applicants will be held in various cities of the United States and Canada, March 28. Oral, clinical and pathological examination of all candidates will be held in Kansas City, Mo., May 11-12. *Applications for the May examination must be received not later than April 1.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Kansas City, Mo., May 11 and New York, Sept. 26. *All applications and case reports must be filed sixty days before date of examination.* Asst. Sec., Dr. Thomas D. Allen, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Kansas City, Mo., May 11. *Applications should be filed with the secretary on or before April 1.* Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Kansas City, Mo., May 9. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Kansas City, Mo., May 9. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: St. Louis, Mo., May 8-9. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Kansas City, Mo., May 8-10. Sec., Dr. B. R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: Kansas City, Mo., May 8-10. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

North Carolina Endorsement Report

Dr. B. J. Lawrence, secretary, North Carolina State Board of Medical Examiners, reports 19 physicians licensed by endorsement after an oral examination, Dec. 9, 1935. The following schools were represented:

LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists	(1934)	N. B. M. Ex.
Howard University College of Medicine	(1934)	Tennessee
University of Georgia School of Medicine	(1931)	Georgia

Northwestern University Medical School	(1932)	Oklahoma, (1934) Kansas
Johns Hopkins University School of Medicine	(1906)	Virginia
Harvard University Medical School	(1931)	California
New York University, University and Bellevue Hospital Medical College	(1933)	New York
Syracuse University College of Medicine	(1928)	New York
Duke University School of Medicine	(1933, 2)	N. B. M. Ex.
Meharry Medical College	(1927) Louisiana, (1934)	Tennessee
Baylor University College of Medicine	(1930)	Texas
Vanderbilt University School of Medicine	(1932)	Tennessee
Medical College of Virginia	(1932)	Texas, Virginia
University of Virginia Department of Medicine	(1931), (1932)	Virginia

Ohio December Examination

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, Dec. 3-5, 1935. The examination covered 10 subjects and included 80 questions. An average of 75 per cent was required to pass. Forty-seven candidates were examined, 46 of whom passed and 1 failed. The following schools were represented:

PASSED	Year Grad.	Per Cent
George Washington University School of Medicine	(1935)	84.4
Georgetown University School of Medicine	(1934)	82.5, 82.7
Loyola University School of Medicine	(1935)	75.9,* 77,* 78.6,* 78.6,* 78.8, 80.3,* 82.1,* 82.9*
Rush Medical College	(1935)	75.8, 84.4,* 87.4
University of Kansas School of Medicine	(1935)	79.9
Harvard University Medical School	(1932)	85.8
University of Minnesota Medical School	(1929)	82.4
St. Louis University School of Medicine	(1935)	81.7
Creighton University School of Medicine	(1935)	78.3, 81.2
Cornell University Medical College	(1933)	80.6
New York Homeopathic Med. Col. and Flower Hospital	(1935)	82.7, 87.8
University of Rochester School of Medicine	(1934)	76.8, (1935) 81
Ohio State University College of Medicine	(1935)	84.2, 88.8
Western Reserve University School of Medicine	(1935)	79.1
Hahnemann Medical College and Hosp. of Philadelphia	(1935)	79.8, 81.3.5, 82.1, 84.4
Jefferson Medical College of Philadelphia	(1935)	80.9, 83, 83.5, 84.2
University of Pennsylvania School of Medicine	(1935)	83.8
Medical College of Virginia	(1935)	77.8
Dalhousie University Faculty of Medicine	(1932)	86.6
Queen's University Faculty of Medicine	(1933)	78
Laval University Faculty of Medicine	(1935)	81.8†
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin	(1933)	84, 85.2‡
Christian-Albrechts-Universität Medizinische Fakultät, Kiel	(1923)	79.6
Magyar Királyi Pazmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest	(1915)	83.7‡

FAILED	Year Grad.	Per Cent
Universität Köln Medizinische Fakultat	(1934)	72.2‡

* This applicant has completed the medical course and will receive his M.D. degree on completion of internship. License has not been issued.
† License has not been issued.
‡ Verification of graduation in process.

Kentucky December Examination

Dr. A. T. McCormack, secretary, State Board of Health of Kentucky, reports the written examination held in Louisville, Dec. 3-5, 1935. The examination covered 11 subjects and included 110 questions. An average of 70 per cent was required to pass. Nine candidates were examined, all of whom passed. The following schools were represented:

PASSED	Year Grad.	Per Cent
Howard University College of Medicine	(1934)	82
Northwestern University Medical School	(1935)	76
University of Louisville School of Medicine	(1934)	84, 84,* (1935) 80
Harvard University Medical School	(1930)	84
University of Pennsylvania School of Medicine	(1935)	83
University of Tennessee College of Medicine	(1935)	82
Vanderbilt University School of Medicine	(1933)	90

Twelve physicians were licensed by reciprocity and 2 physicians were licensed by endorsement from April 12 through December 18. The following schools were represented:

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Illinois College of Medicine	(1931)	Missouri
Indiana University School of Medicine	(1932)	Indiana
University of Louisville School of Medicine	(1927) (1934)	Indiana, West Virginia
University of Cincinnati College of Medicine	(1933), (1934), (1935)	Ohio
University of Pittsburgh School of Medicine	(1933)	Penna.
Woman's Medical College of Pennsylvania	(1922)	Penna.
University of Tennessee College of Medicine	(1932), (1933)	Tennessee
Vanderbilt University School of Medicine	(1934)	Virginia

LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School	(1933)	N. B. M. Ex.
Jefferson Medical College of Philadelphia	(1933)	N. B. M. Ex.

* License has not been issued.

Book Notices

Medical Uses of Radium. Summary of Reports from Research Centres for 1934. Medical Research Council, Special Report Series, No. 204. Paper. Price, 1s. Pp. 45, with 7 illustrations. London: His Majesty's Stationery Office, 1935.

This is the thirteenth report of the Medical Research Council describing the research done with radium and radon distributed by the Medical Research Council to selected centers in Great Britain and Ireland. The original stock of radium entrusted to the council by the British government and lent by the council to various centers is supplemented by further quantities provided by the British Empire Cancer Campaign and by the National Radium Commission. The research, which has been continued for several years at the Strangeways Laboratory, Cambridge, tends to show that biologic effects produced by radiation can be repeated over and over again with a measure of accuracy not always attained in purely physical fields, provided the most rigorous attempt is made to limit the number of variables operating at one and the same time. They find that to get a well recognized effect there is an optimum intensity at which the release of energy may occur. It has long been known that tissues react differently according to the time intervals over which the physical doses are applied, according to the type of radiation, and according to the dose that is given, but this apparently new observation is one that must sooner or later be taken into account in clinical conditions.

Dr. Mottram has investigated the problem of artificially varying the degree of radiosensitivity of tissues. He has determined that those agents which are active in one direction or the other in animal cells produce corresponding effects in vegetable cells.

Investigation in the Bland Sutton Institute of Pathology at the Middlesex Hospital shows that, when a portion of tissue is removed by the method of electrocoagulation, good sections can be prepared from it for microscopic studies and there is the clinical assurance against dissemination.

Dr. W. V. Mayneord of the Cancer Hospital reports further experimental work on the applicability of the roentgen to gamma ray therapy. The value previously found (of approximately 8.3 roentgens per milligram hour, 1 cm. from a point source filtered with 0.5 mm. of platinum) has been confirmed by Dr. Mayneord as well as by certain other observers. Further investigation on the design of air-wall ionization chambers for such measurements has been performed.

Crabtree and Cramer have shown, using animal tumors and the tissues of rats, that the radiosensitivity of cells is greatly altered by treatments known to be specially effective in having an action on cellular respiration. Their results suggest that radiation may have a special action on the respiratory system, which appears to be especially sensitive in its nonfunctioning oxidized phase. The results of the investigations by these authors suggest that the varying sensitivity of tumors to radiation is probably not related to mitotic activity but rather to the metabolic and perhaps the respiratory activity of the cells.

The report includes references to the treatment of mammary cancer in various institutions. The Aberdeen Royal Infirmary reports microscopic examination of thirteen breasts removed following radium treatment. In the Birmingham General Hospital the standard method of treatment of mammary cancer has been complete interstitial irradiation as outlined by Keynes. Two or three months later, external radiation is applied. In the Marie Curie Hospital the operable lesions have been treated by radical operation and radium has been restricted to the inoperable group. In the Middlesex Hospital, radical operation is performed for operable lesions by some surgeons and radium tubes are inserted as a prophylactic measure in the intercostal spaces. Some lesions are treated by interstitial radiation. An increasing number of patients are receiving preoperative roentgen treatment. In the Royal Free Hospital early lesions are treated by radical surgery, in some cases combined with radium therapy. Mr. Geoffrey Keynes of St. Bartholomew's Hospital reports that during the last three years the procedure in the treatment of cancer of the breast has been varied by performing excision of the tumor with diathermy when it is small or

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a local removal of the breast when the growth is larger. The routine treatment with radium is then carried out from two to three weeks later. It is believed that the local excision reduces the incidence of local recurrence in the breast. The Surgical Unit of the St. Bartholomew's Hospital, after studying the comparative results of treatment of cancer of the breast by surgical operation and by interstitial radiation, concludes that the five year survival rate of the two methods of treatment is not materially different, being in each case 40 per cent. It became evident that, if improvement was to be reached, a new line of approach should be tried. Consequently it was decided that the next attempt should be to combine interstitial radium with surgery. It is intended to study a series of fifty cases treated by this method before reaching any conclusion.

Nine hundred and sixty cases of carcinoma of the cervix have been treated in the Marie Curie Hospital during the first ten years of its existence. Recently there has been a moderate increase in the number of patients applying for treatment at an early stage. The Coutard technic of roentgen therapy is utilized and except in very advanced cases is combined with radium. Ninety-three cases of carcinoma of the corpus uteri have been treated by radium in the Marie Curie Hospital, representing only 40 per cent of the total group. When possible, hysterectomy has been performed. Eight hundred and thirty-three cases of nonmalignant uterine hemorrhage have been treated at the Marie Curie Hospital. Eighty-seven cases of myoma of the uterus were treated with radium. In four cases, hysterectomy was subsequently performed.

In August 1932 the King Edward's Hospital fund for London, acting with the Radium Commission, put at the service of three London hospitals—the Cancer Hospital, University College Hospital and Middlesex Hospital—1 Gm. radium units, that their utility in the treatment of malignant disease might be investigated. The report from the Middlesex Hospital states that the teleradium unit has continued to prove its usefulness to the radium department and has been in use both day and night. One hundred and nineteen patients have been treated by this means during the year. The report states that it is a method of therapy which is more convenient and associated with less danger to the staff than is the case when large molded applicators are used. From the University College Hospital it appears that, during the first two years of its use 109 patients were treated with the 1 Gm. unit. The best results have been obtained with lesions that are not too deeply seated and when so located as to permit crossfiring from various directions. The solution of this difficulty obviously lies in the direction of treating at a greater distance, which in turn requires a larger quantity of radium.

Body Water: The Exchange of Fluids in Man. By John P. Peters, M.D., Professor of Internal Medicine, Yale University School of Medicine. Cloth. Price, $4. Pp. 405, with 5 illustrations. Springfield, Illinois, and Baltimore: Charles C. Thomas, 1935.

From time to time it is of value to review important investigations and relevant studies to see how coherent they are in relation to an accepted hypothesis, to find where they disagree and to devise new experimental approaches for the solution of the problem. The author of this monograph is well qualified to examine such an important subject in this manner. The book, however, is more than a review of the movement of fluid and electrolytes and the nature of restraints the vital membranes of the body impose on them. It is a judicious and scholarly attempt to construct a background for a more rational analysis of the functional pathology of various clinical and pathologic disturbances. The disturbances related to renal injury receive major consideration. The author develops his thesis from fundamental discussions of chemical forces that control exchanges of fluid and solutes, the nature and movements of interstitial fluid and lymph, exchanges between blood and interstitial fluids, blood cells and serum, cells and fluids and alimentary exchanges. He then considers the dynamic physiology of the kidney and the general nature of renal activity as a basis for interpretation of the phenomena seen in renal disease. The desirability of distinguishing between changes secondary to renal damage and those resulting from such involvement are clearly indicated. While the book is not intended as an unprejudiced review of the subject, it is presented in such a scholarly and convincing manner that it unconsciously serves that purpose. More than 800 critically selected references are correlated and cited. The book is highly recommended as an important contribution to the subject and one which clinicians can profitably read with the physiologist and the biochemist.

Haarkrankheiten und kosmetische Hautleiden, mit besonderer Berücksichtigung der Therapie. Von Prof. Dr. R. O. Stein, Vorstand der Abteilung für Haut- und Geschlechtskrankheiten am Mariahilfer Ambulatorium und Spital in Wien. Paper. Price, 12.60 marks. Pp. 218, with 6 illustrations. Vienna: Julius Springer, 1935.

Stein has presented in a readable style the subject of diseases of the hair and cosmetic ailments of the skin. The work is divided into two parts: Part A deals with diseases of the hair, which are discussed under the topics of the hair covering of man, excessive hair growth, defects in hair covering and the hair shaft, mechanical disturbances of the hair shaft, the saprophytes that involve the hair shaft, and hair loss. The latter is divided into two separate topics: conditions that affect the mature hair and conditions affecting the hair papillae. Part B deals with the cosmetic diseases of the skin, which are discussed under the headings of nevi, tumors, scars and keloids, hyperpigmentation and depigmentation, anomalies in secretion of the sebaceous glands, anomalies in secretion of the sweat glands, angioneurosis, hyperkeratosis, and senile changes and correction of wrinkling of the face. The book treats the subject in a scientific manner, with free citations of the names of workers who have contributed pertinent articles bearing on the subjects discussed. Etiology, pathogenesis and various methods of treatment that can be employed are discussed. While some of the therapeutic agents are of a type not available in this country, the majority of the preparations recommended can be compounded here. The methods of treatment on the whole are conservative and conform in the main with the accepted methods used and recommended by American dermatologists. Stein gives a detailed discussion of the method of employment of a filtered technic for the roentgen treatment of hypertrichosis. Most American dermatologists do not feel that epilation by x-rays for hypertrichosis has a place in treatment because of the dangerous sequelae resulting from its use. The book should serve as a useful addition in the library of medical men interested in this phase of diseases of the skin and its appendages.

Practical Orthodontia. By Martin Dewey, D.D.S., M.D., F.A.C.D. Revised by George M. Anderson, D.D.S., Professor of Orthodontia, Baltimore College of Dental Surgery, Dental School, University of Maryland, and others. Fifth edition. Cloth. Price, $8.50. Pp. 514, with 586 illustrations. St. Louis: C. V. Mosby Company, 1935.

This is a new edition of the orthodontic textbook of the late Martin Dewey, arranged by George M. Anderson. Important additions have been furnished by the chapters written by the ten contributors. Dr. Anderson has attained the purpose set forth in the preface: "To include in one volume authoritative material which will aid the student of dentistry, the practitioner of dentistry, and the student of orthodontia to understand the problems which confront those who choose to practice orthodontics." Both students and practitioners of dentistry as well as specialists in the field of orthodontics will find much of value. Any author of such a work is confronted with no inconsiderable problem. The many contributions that have been made in this specialty, particularly in the last twenty years, preclude the possibility of more than a statement of principle in one volume. While a statement of principle is of material value and importance to the student of dentistry, the requirement of the practitioner in this specialty demands a comprehensive treatment of both fundamental principles and the details of technic. From this standpoint the volume occupies an intermediate position. A simple presentation of principles such as is admirably accomplished in the chapter by Rudolf Kronfeld, on tissue changes incident to orthodontic tooth movement, would permit a material reduction in the size of the volume, while a comprehensive treatment of the subject matter would necessitate extensive expansion.

Dr. Bernhard Weinberger has contributed an excellent chapter on the historical background of modern orthodontia. Chapter 5, on the etiology of malocclusion, reveals by its attention to detail and its avoidance of principle a serious void in the knowledge of orthodontia. It is probable that time will have to contribute through careful and intelligent investigation more satisfactory

data before it will be possible to rationalize the principles that underlie the production of malocclusion. As these principles become clearer, the detailed recitation of particular active causes will assume a more rational position. There is an extensive treatment of diagnosis, including the specialized technics that have recently come into prominence. Of particular note in this connection are gnathostatics and photostatics in chapter 8, radiographic profiles by Sidney Riesner in chapter 7, and measurement of dental-facial changes in relation to the cranium by B. Holly Broadbent in chapter 9.

Attention is appropriately given to an important phase of orthodontic science included in the prevention and correction of malocclusion by other than mechanical means. In this respect the chapter on myofunctional treatment of malocclusion, by Alfred Paul Rogers, is of importance. A detailed exposition of band technic is included in the contribution of Earl W. Swinehart on orthodontic bands. Mechanical appliances in most common use are presented in chapters 17, 18, 19 and 20.

The matter of retention is given a short chapter, which is satisfactory from the standpoint neither of principle nor of detail of practice. The final two chapters deal with correlation between orthodontics and two closely allied specialties, oral surgery and that of the nose and throat. The former, written by Edward A. Kitlowski, furnishes a discussion of the principal deformities interesting to both specialties. The latter is a brief recognition of the close relationship that exists between the oral and the nasal cavity and the nasal sinuses.

A Basis for the Theory of Medicine. By A. D. Speransky, Director of the Department of Patho-Physiology of the All-Union Institute of Experimental Medicine. Translated and edited by C. P. Dutt, B.A. With the collaboration of A. A. Subkov, Senior Research Worker of the Timiryazev Biological Institute. Cloth. Pp. 452, with 69 illustrations. Moscow: Inra Co-Operative Publishing Society, 1935.

This monograph with a rather ambitious title will impress the reader with the way in which the Pavlov school has dominated soviet medical science. The text deals almost exclusively with neurophysiology and at times a philosophic attempt to explain diverse pathologic and clinical observations on that basis. The book lacks clarity and organization, and much interesting information is submerged as a result of it. The author discusses the nervous mechanism of complex convulsive states, the rôle of the cerebrospinal fluid in the genesis of some forms of encephalitis, its circulation, the rôle of the nervous system in the pathogenesis of certain infectious diseases, and dystrophic processes within the nervous system. Original experiments are cited throughout the text. While many thoughts expressed in the book are provocative, it lacks unity. The main criticism of this monograph is its unjustified generalizations. The author has strayed too far from his material. He has presented a great deal of theory with meager basis for it. Before pulling down the old edifice, one must have more than architectural aspirations for the new one.

Practical Clinical Psychiatry for Students and Practitioners. By Edward A. Strecker, A.M., Sc.D., M.D., Professor of Psychiatry and Chairman of the Department of Psychiatry, School of Medicine, University of Pennsylvania, and Franklin G. Ebaugh, A.B., M.D., Professor of Psychiatry, University of Colorado Medical School. Fourth edition. Fabrikold. Price, $5. Pp. 705, with 60 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1935.

The new edition, the fourth in ten years, of this popular textbook, is dedicated to Dr. Adolf Meyer. His psychobiologic point of view and teachings richly pervade the whole book. There are 125 more pages than in the previous edition. Rearrangement of certain material and rewriting of other parts have resulted in distinct improvement. There is a new first chapter on psychobiologic conceptions of mental disorders. The autobiographic or planned personality study of himself by the student is favored for his better subsequent understanding of psychiatric patients. The new American classification of mental diseases in about fifty groups is included for reference, although the author's original list of seven fundamental types is retained. Methods of examination have been amplified. A discussion of the Kettering hypertherm is added to the section on therapy of neurosyphilis. There are many new illustrations. The new final chapter is by Dr. Leo Kanner on psychopathologic problems of childhood. As an introduction to modern psychiatry, this volume is the superlative of good.

Handbuch der experimentellen Pharmakologie. Herausgegeben von A. Heffter. Fortgeführt von W. Heubner, Professor der Pharmakologie an der Universität Berlin. Band III, Teil 4: Seltene Erdmetalle, Molybdän und Wolfram, Wismut. Bearbeitet von B. Behrens, u. a. Paper. Price, 48 marks. Pp. 2189-2730, with 14 illustrations. Berlin: Julius Springer, 1935.

This volume of the Handbook on Experimental Pharmacology is devoted most especially to an exhaustive exposition of the pharmacology of bismuth (over 500 pages), a discussion of what is known about molybdenum and tungsten, and a chapter on the rarer earth metals. In pharmacologic action the latter resemble one another and aluminum as well and, to a certain extent, thorium. Especially marked is the resemblance between neodymium and praseodymium; while there are, on the other hand, rather marked differences in case of ytrium, lanthanum and scandium. It has been shown that cerium cannot replace calcium or magnesium. The use of cerium oxalate as an antiemetic seems to have a certain amount of experimental justification. Colloidal molybdenum seems to have chemotherapeutic possibilities in various infections, including tuberculosis. In the section on bismuth, August W. Forst discusses interestingly the history of the therapeutic use of bismuth compounds and points out that "magisterium bismuthi" (bismuth subnitrate) after several ups and downs in therapeutic favor has been deleted, as superfluous, from the British pharmacopeia of 1933. In view of the fact that bismuth has been tried for almost everything, it is not strange that it was recommended as early as 1788 by Bassiano Carminati as a remedy for syphilis, a use around which the chief interest in bismuth centers today. While bismuth salts themselves have no spirocheticidal action in vitro, such power is developed by incubation with fresh tissue extract. This effect is found to reside in a thermolabile, nondialysable bismuth protein combination for which the term "bismoxyl" has been proposed; and it is believed that in this form bismuth circulates and exerts its therapeutic action. For the tissue extract "principle" responsible for the production of bismoxyl the term "bismogen" has been suggested. In the affected tissues bismoxyl is present in such minute traces that it must act as a catalyzing influence in accelerating the natural parasitolytic defensive principles. In contrast to the arsenicals, bismuth action on the syphilis spirochetes is exceedingly slow in asserting itself but protection derived from it is much more durable. Future improvements in syphilis therapy with bismuth may depend on the development of compounds with the highest possible bismuth content and lowest possible toxicity.

Modern Treatment in General Practice. Volume II. Edited by Cecil P. G. Wakeley, D.Sc., F.R.C.S., F.R.S.E., Fellow of King's College, London. Cloth. Price, $4. Pp. 382, with illustrations. Baltimore: William Wood and Company, 1935.

This is a collection of reprints of articles that appeared weekly in the *Medical Press and Circular*, the subjects ranging in a more or less haphazard manner from the therapy of peptic ulcer, constipation, asthma and thyrotoxicosis to the treatment of facial injuries, athletic injuries, and several varieties of fractures. Each article is prepared by an eminent special student of the subject, with illustrations wherever they may be of advantage. One senses the voice of experience emanating from the pages of this book, which can be unreservedly recommended most especially to the general practitioner.

Agents of Disease and Host Resistance Including the Principles of Immunology, Bacteriology, Mycology, Protozoology, Parasitology and Virus Diseases. By Frederick P. Gay. In association with nineteen others. Cloth. Price, $10. Pp. 1,581, with illustrations. Springfield, Illinois, and Baltimore: Charles C. Thomas, 1935.

This is a comprehensive treatise on the agents of disease and resistance of the host. It embraces the principles of bacteriology, mycology, protozoology, parasitology and virus diseases. It is monographic in scope and completeness, yet in its uniformity and point of view it is much like a comprehensive textbook. This has been achieved by careful editing and organization of material from experienced collaborators, who for the most part have been associated with the author in the same department. The text deals essentially with the principles of the respective subjects and purposely omits technical methods. While this type of organization will distinctly limit its immediate usefulness for the laboratory technician, it will more than compensate for the fundamental knowledge it will impart. The book will probably find its greatest use as a reference work

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but is a valuable addition to any physician's library. It is adequately illustrated and notably free from errors. Each subject is supplemented by a critically selected and unusually complete bibliography. The book is highly recommended as an important contribution to any medical library.

Die Praxis der Sterilisierungsoperationen. Von Prof. Dr. med. K. H. Bauer, Direktor der chirurg. Univers.-Klinik, Breslau, und Prof. Dr. med. F. von Mikulicz-Radecki, Direktor der Univers.-Frauenklinik, Königsberg i. Pr. Paper. Price, 15.40 marks. Pp. 176, with 91 illustrations. Leipzig: Johann Ambrosius Barth, 1936.

The Nazi government in Germany has caused medical men to review rather carefully the so-called medical indications for the operation of sterilization. The first section of the monograph by Bauer and Mikulicz-Radecki is a discussion of the indications for this operation, which is now required in Germany. It also gives the legal forms that are used in cases in which sterilization is employed. The second section of the book describes the various operations that may be used for the sterilization of men. The third section deals with the types of operations suitable for the sterilization of women. The operative procedures are shown in the illustrations. Eight pages of bibliography and the index complete the volume. Those who are interested in the study of medical sterilization will find this an interesting contribution to the subject.

The Spleen and Resistance. By David Perla, M.D., Associate Pathologist and Bacteriologist, Montefiore Hospital, and Jessie Marmorston, M.D., Associate in Pathology, Cornell University Medical College. With a foreword by David Marine, M.D. Cloth. Price, $2. Pp. 170. Baltimore: Williams & Wilkins Company, 1935.

One of the factors that determine the infectibility as well as the sequelae of infections in the human body has been constantly associated with the spleen and the reticulo-endothelial system. A fair amount of medical literature has been devoted to this interesting but evasive subject. The authors of this monograph have not only critically evaluated that literature but cite their own contributions in detail, which definitely add to our knowledge. Human as well as animal material has been utilized for study. The introductory chapter on anatomic considerations of the spleen is concise but adequate. Then follows a detailed consideration of the pathologic changes in the spleen in various types of infections of bacterial, virus, parasite and fungus origin. The functions of the spleen as an organ of macrophage tissue and antibody formation are next discussed and this material is correlated with changes after splenectomy. Each phase of the subject and pertinent literature are well summarized and judiciously interpreted. This concise but comprehensive presentation should be of interest to the clinician as well as to the pathologist and the bacteriologist.

Clinical and Pathological Applications of Spectrum Analysis with Notes on Spectrography in Chemistry and Mineralogy, and Tables for Qualitative Analysis. By Dr. Walther Gerlach and Dr. Werner Gerlach. Being the authorised translation of Part II of "Die chemische Emissionsspektralanalyse." Translated by Joyce Hilger Twyman. Cloth. Price, 15s. Pp. 143, with 50 illustrations. London: Adam Hilger, Ltd., 1934.

This volume is the authorized translation of part II of "Die Chemische Emissionsspektralanalyse" by Dr. Walther Gerlach and Dr. Werner Gerlach. Adam Hilger Limited, the spectrograph manufacturer, of London, is the publisher and distributer of this translation. If one has spectrographic equipment, expensive though it may be, much of interest and of value may be accomplished in the various fields of study, among which may be listed toxicology of various kinds. Special methods are given for the qualitative and quantitative analysis of organs, secreta and excreta. The use of the spectrograph as applied to electropathology and pneumoconiosis is also described. Other subjects of a general nature are treated. If one does not have spectrographic equipment, the book is without practical value.

Manuel de coprologie clinique. Par R. Goiffon. Préface de J. Ch. Roux. Third edition. Paper. Price, 28 francs. Pp. 274, with 45 illustrations. Paris: Masson & Cie. 1935.

This small manual well deserves its third edition. It is concise and well written. The subject is thoroughly covered and brought down to date. The chapter dealing with the physiology of the gastro-intestinal tract is especially to be commended. All phases of the subject are given in detail, including the chemical, bacteriologic and allergic. The parasitology is exceptionally well given, with numerous well chosen illustrations.

Popoff's Quantitative Analysis: The Theory and Practice of Modern Analytical Chemistry with Problems and Explanations of Calculations. Revised by Murray J. Rice, Ph.D., Professor of Chemistry, New York State College of Ceramics at Alfred University, and Warren P. Cortelyou, B.S., Assistant Professor of Chemistry, New York State College of Ceramics at Alfred University. Third edition. Cloth. Price, $4. Pp. 555, with 76 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1935.

This volume is intended to be used as a textbook and laboratory manual in beginning inorganic quantitative analysis. For this purpose it should prove useful. The treatment of theoretical subjects is good. Micromethods and methods of analysis for organic substances are not included.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Scarlet Fever Not a Compensable Injury.—The plaintiff, an employee in the cafeteria operated by the defendant hospital, contracted scarlet fever allegedly from a student nurse with whom she came in contact in the course of her employment. In a proceeding under the workmen's compensation act of Michigan, the department of labor and industry awarded compensation to the plaintiff and the defendants appealed to the Supreme Court of Michigan.

Although the plaintiff might possibly have contracted the disease outside the hospital, the court said, the evidence constituted some basis for the finding that the plaintiff contracted the disease in the hospital in the course of her employment. But, continued the court, the purpose of the workmen's compensation act is to give compensation for industrial accidents. It protects employees against all accidental injuries arising out of and in the course of employment, whether caused by the negligence of the employer or not, but not against a contagious disease contracted from a fellow employee. The court expressed itself as impressed with the reasoning of Judge Cardozo in *Connelly* v. *Hunt Furniture Co.*, 240 N. Y. 83, 147 N. E. 366, as follows:

> Germs may indeed be inhaled through the nose or mouth, or absorbed into the system through normal channels of entry. In such cases their inroads will seldom, if ever, be assignable to a determinate or single act, identified in space or time. [Citations omitted.] For this as well as for the reason that the absorption is incidental to a bodily process both natural and normal, their action presents itself to the mind as a disease and not an accident. Our mental attitude is different when the channel of infection is abnormal or traumatic, a lesion or a cut. If these become dangerous or deadly by contact with infected matter, we think and speak of what has happened as something catastrophic or extraordinary, a mishap or an accident . . . though very likely a disease also.

In the opinion of the court in the present case, the contraction of a contagious disease under the circumstances here presented did not constitute an industrial accident and did not come within the purview of the workmen's compensation act. The award was consequently set aside.—*Basil v. Butterworth Hospital (Mich.), 262 N. Y. 281.*

Roentgenograms: Ownership of Roentgenograms.—The defendant company employed the plaintiff, a physician, to treat one of its employees who had sustained an injury to the lower part of the back involving the sacro-iliac joint. On the refusal of the company to pay for the services rendered, the plaintiff brought suit. A judgment was rendered in favor of the plaintiff, and the defendant appealed to the Supreme Court of Michigan.

The defendant declined to pay the bill because the plaintiff refused to deliver to it certain roentgenograms taken during the course of treatment. The plaintiff was justified in thus refusing to surrender possession of the roentgenograms, said the Supreme Court. In the absence of agreement to the contrary, roentgenograms are the property of the physician who has made them incident to treating a patient, notwithstanding their cost is charged to the patient. Their retention by the physician constitutes an important part of his clinical record

in the particular case, and in the aggregate roentgenograms may embody and preserve much of value incident to a physician's experience. They are as much a part of the history of the case as any other case record made by a physician. Roentgenograms differ little if at all from microscopic slides of tissue made in the course of diagnosing or treating a patient, and it would hardly be claimed that such slides were the property of the patient. Furthermore, continued the court, in the event of a malpractice suit against the physician, the roentgenograms that he has caused to be taken and preserved incident to treating the patient might often constitute the unimpeachable evidence which would fully justify the treatment of which the patient complained. In reaching its conclusion the court relied on the cases of *Corliss* v. *E. W. Walker Co.* (C. C.) 64 F. 280, 31 L. R. A. 283, and *Pollard* v. *Photographic Company*, 40 Ch. Div. 345, in which it was held that the negative of an ordinary photograph, in the absence of an agreement otherwise, belongs to the operating photographer although his use thereof may be restricted.

The judgment in favor of the physician was affirmed.—*McGarry v. J. A. Mercier Co. (Mich.), 262 N. W. 296.*

Workmen's Compensation Acts: Physician's Right to Initiate Proceedings Before Industrial Accident Board.—A workman injured in the course of his employment was treated in a hospital by the physician-plaintiff, on the written authorization of the workman's employer. The employer's insurance carrier paid the hospital bill, $315. Later the workman was treated in another hospital by another physician, and for the services of both hospital and physician the insurance carrier paid $185. The workman settled his claim against his employer for compensation, with the approval of the Montana industrial accident board. Thereafter, the physician who treated the workman immediately after the injury sent to the insurer a bill for services rendered. The insurer refused to pay, and the physician initiated proceedings before the Montana industrial accident board to compel him to do so. The board dismissed the proceedings, and its action was affirmed by the district court, Glacier County. The physician thereupon appealed to the Supreme Court of Montana. The insurer contended (1) that, as the Montana workmen's compensation act limited an employer's liability for medical and hospital services to $500, it had already discharged its obligation, since it had paid that amount, and (2) that the industrial accident board was without jurisdiction to hear the proceedings instituted by the physician.

The Supreme Court pointed out that this was not a proceeding before the industrial accident board by the injured workman, seeking an award on account of medical or hospital services. If it were, said the court, the board would undoubtedly have jurisdiction. Here, however, the claimant is a physician who has rendered services to the injured workman, and neither the workman nor his employer is a party to the proceedings. The Montana workmen's compensation act does not specifically authorize the board to fix the fee charged by any person for any service in connection with the act, as do some other state compensation acts, but it authorizes the board only to determine disputes or controversies arising under the act. Even under statutes that authorize industrial accident boards to fix medical fees, said the court, it is generally held that a physician may maintain an action at law to recover for services rendered an injured workman and that the courts have jurisdiction. Under such statutes it is generally held, too, that an industrial accident board or any similar agency is without jurisdiction to make an award to a physician who has rendered medical services at the request of an employer or insurance carrier. In the judgment of the Supreme Court, the Montana industrial accident board, in approving the settlement between the employer and his injured workman, had exhausted its jurisdiction before the present proceedings were initiated. The board, therefore, was without authority to entertain the physician's claim. The physician's remedy in this case, if he had any, the Supreme Court concluded, was an appropriate action in court. In view of this fact, the Supreme Court found it unnecessary to pass on the contention of the insurer that it had satisfied the liability of the employer and itself when it paid for medical and hospital services, without reference to the present claim, the sum of $500, the statutory limit.

The judgment of the court below, affirming the action of the industrial accident board dismissing the proceeding instituted by the physician, was affirmed.—*Liest v. United States Fidelity & Guaranty Co. (Mont.), 48 P. (2d) 772.*

Society Proceedings

COMING MEETINGS

American Medical Association, Kansas City, Mo., May 11-15. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

Alabama, Medical Association of the State of, Montgomery, Apr. 21-23. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Academy of Pediatrics, Kansas City, Mo., May 11-12. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Association for Thoracic Surgery, Rochester, Minn., May 4-6. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of Anatomists, Durham, N. C., Apr. 9-11. Dr. George W. Corner, 260 Crittenden Boulevard, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Boston, Apr. 9-10. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association on Mental Deficiency, St. Louis, May 1-4. Dr. Groves B. Smith, Beverly Farms, Godfrey, Ill., Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., May 4-5. Dr. Russell S. Boles, 1901 Walnut Street, Philadelphia, Secretary.

American Heart Association, Kansas City, Mo., May 12. Dr. H. M. Marvin, 50 West 50th St., New York, Acting Executive Secretary.

American Physiological Society, Washington, D. C., Mar. 25-28. Dr. A. C. Ivy, 303 East Chicago Avenue, Chicago, Secretary.

American Psychiatric Association, St. Louis, May 4-8. Dr. William C. Sandy, State Education Building, Harrisburg, Pa., Secretary.

American Radium Society, Kansas City, Mo., May 11-12. Dr. E. H. Skinner, 1103 Grand Ave., Kansas City, Mo., Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 4. Dr. J. M. Hayman Jr., Lakeside Hospital, Cleveland, Secretary.

American Society for Experimental Pathology, Washington, D. C., Mar. 25-28. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Washington, D. C., Mar. 25-28. Dr. E. M. K. Geiling, 710 North Washington Street, Baltimore, Secretary.

American Society of Biological Chemistry, Washington, D. C., Mar. 25-28. Dr. H. A. Matill, Chemistry Bldg., State University of Iowa, Iowa City, Secretary.

American Surgical Association, Chicago, May 7-9. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Kansas City, Mo., May 8-9. Dr. Oscar B. Hunter, 1835 Eye St. N. W., Washington, D. C.

Arizona State Medical Association, Nogales, Apr. 23-25. Dr. D. F. Harbridge, 15 East Monroe Street, Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, Apr. 27-29. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association for the Study of Internal Secretions, Kansas City, Mo., May 11-12. Dr. E. Kost Shelton, 34 Micheltorena St., Santa Barbara, Calif., Secretary.

Association of American Physicians, Atlantic City, N. J., May 5-6. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

District of Columbia, Medical Society of the, Washington, D. C., May 6. Dr. C. B. Conklin, 1718 M St. N. W., Washington, D. C., Secretary.

Federation of American Societies for Experimental Biology, Washington, D. C., Mar. 25-28. Dr. E. M. K. Geiling, 710 North Washington Street, Baltimore, Secretary.

Florida Medical Association, S. S. *Florida*, Apr. 27-29. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Savannah, Apr. 21-24. Dr. Edgar D. Harris, 1678 Ponce de Leon Street N.E., Atlanta, Secretary.

Iowa State Medical Society, Des Moines, Apr. 29-May 1. Dr. Robert L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Lonisiana State Medical Society, Lake Charles, Apr. 27-29. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 28-29. Dr. Walter Dent Wine, 1211 Cathedral St., Baltimore, Secretary.

Medical Women's National Association, Kansas City, Mo., May 10-12. Dr. Laila A. Coston-Conner, 333 East 68th St., New York, Secretary.

Minnesota State Medical Association, Rochester, May 3-6. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.

Mississippi State Medical Association, Greenville, May 5-7. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.

Missouri State Medical Association, Columbia, Apr. 13-15. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.

National Tuberculosis Association, New Orleans, Apr. 22-25. Dr. Charles J. Hatfield, 7th and Lombard streets, Philadelphia, Secretary.

Nebraska State Medical Association, Lincoln, Apr. 7-9. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.

New Mexico Medical Society, Carlsbad, May 6-8. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, New York, Apr. 27-29. Dr. Daniel S. Dougherty, 2 East 103d St., New York, Secretary.

North Carolina, Medical Society of the State of, Asheville, May 4-6. Dr. L. B. McBrayer, Southern Pines, Secretary.

Oklahoma State Medical Association, Enid, Apr. 6-8. Dr. L. S. Willour, 203 Ainsworth Building, McAlester, Secretary.

South Carolina Medical Association, Greenville, Apr. 21-23. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Sioux Falls, May 4-6. Dr. John F. D. Cook, Langford, Secretary.

Tennessee State Medical Association, Memphis, Apr. 14-16. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

31: 1-186 (Jan.) 1936. Partial Index

Chronic Hypochromic Anemia in Women: Consideration of Its Etiology and Treatment, with Especial Reference to Relationship of Gynecologic Disorders. L. A. Gray and M. M. Wintrobe, Baltimore.—p. 3.

Study of Ovaries Following Preoperative Administration of Extract of Pregnancy Urine. E. C. Hamblen and R. A. Ross, Durham, N. C.—p. 14.

*Influence of Collapse Therapy in Treatment of Pulmonary Tuberculosis on Menstrual Physiology. E. M. Jameson, Saranac Lake, N. Y.—p. 30.

*Vaccination During Pregnancy as Prophylaxis Against Puerperal Infections: Preliminary Report. J. B. Bernstine and R. E. Otten, Philadelphia.—p. 37.

Single Contraction Delivery in Breech Presentation. E. T. Rulison, Sacramento, Calif.—p. 49.

*Water Concentration of Blood During Pregnancy, Labor and Puerperium. F. W. Oberst and E. D. Plass, Iowa City.—p. 61.

Pneumococcus Pelvic Infection in Women. P. Tompkins, Philadelphia.—p. 70.

Study of Blood Loss in Third Stage of Labor and Factors Involved. J. B. Pastore, New York.—p. 78.

Treatment of Pelvic Inflammation by Iontophoresis of Acetyl-Beta-Methylcholine Chloride. A. Jacoby, New York.—p. 93.

Résumé of Two Hundred and Twenty-Three Cases of Surgical Sterilization. C. B. Lull, Philadelphia.—p. 101.

Month of Conception of Nine Hundred and Thirty-Five Congenitally Malformed Individuals. D. P. Murphy, Philadelphia.—p. 106.

Is the Oval or Female Type Pelvis a Rachitic Manifestation? H. Thoms, New Haven, Conn.—p. 111.

Irradiation of Pituitary Gland in Treatment of Menopausal Symptoms. C. G. Collins, E. P. Thomas and L. J. Menville, New Orleans.—p. 115.

Effect of Sympathetic Denervation on Ovulation and Estrus in Rat. H. G. Schwartz and C. L. Buxton, Boston.—p. 132.

Personal Record of Hysterectomies Performed During Period of Five Years. H. Grad, New York.—p. 150.

Kirschner-Wagner Operation for Construction of Artificial Vagina. D. N. Barrows, New York.—p. 156.

Collapse Therapy for Tuberculosis and the Menstrual Physiology.—Jameson says that a study of seventy-four cases of tuberculosis has shown that thoracoplasty results in definite changes in the menstrual function. The untoward results noted cannot always be attributed to an increase in the tuberculous lesion or to a further deterioration in the patient's health. It would seem that the usual explanation of a "toxemia" of tuberculosis as the cause of abnormal menstruation in tuberculous women is inadequate and that the problem should be approached from the same angle and with the same broad point of view that obtains in the investigation of endocrine dystrophies in nontuberculous women.

Prophylaxis Against Puerperal Infections.—Bernstine and Otten undertook to culture the organisms commonly found in puerperal infection, test their effect on laboratory animals and by means of a vaccine made from the cultures endeavor to elevate the immunity of the pregnant woman to puerperal infection in general. The technic of preparing the vaccine, the experimental trials in mice and the results obtained by the use of the vaccine in fifty-one pregnant women are discussed. Active immunity was conferred to mice by means of repeated injections of vaccine. The safety and absence of reactions to the vaccine were first demonstrated in a series of nonpregnant women of the childbearing period. From three to thirteen injections of the vaccine were given the fifty-one pregnant women without untoward reactions. Each patient was first given an intracutaneous injection of 0.05 cc. of vaccine on the flexor surface of the forearm. Subsequent injections at weekly intervals were given intramuscularly in the deltoid region. The initial intramuscular injection was 0.1 cc. The dosage was gradually increased to 0.2 cc. per injection. Abortion or miscarriage did not occur. Preexisting conditions in these cases, whether acute or chronic, were not aggravated by vaccination. These fifty-one patients delivered with no fatalities. The puerperal morbidity was 5.9 per cent as compared to the combined morbidity of the nonvaccinated cases which was 19.01 per cent. There was one stillbirth, the mother being a preeclamptic patient with marked hypertension and a separated placenta. The authors feel that this type of vaccination of pregnant women should be included in the armamentarium of antepartum care.

Water Concentration of Blood During Pregnancy.—Oberst and Plass studied the moisture content of plasma and cells in relation to variations in the plasma proteins and the cell hemoglobin in twenty pregnant women (ten primigravidas and ten multigravidas), ten parturient women, ten puerperal women and ten nonpregnant women, who served as controls. The pregnant women were in the latter part of the third trimester of pregnancy. The obstetric patients were clinically free from disturbing disease conditions, while the nonpregnant group consisted of nurses and of patients with minor complaints who were in the gynecologic wards. All individuals were given an ordinary mixed diet and, except for the parturient and puerperal patients, were not confined to bed. The study disclosed that during the active childbearing function of women, the water concentrations of whole blood, plasma and cells follow the same general curve, which is the reverse of that noted for specific gravity of whole blood and plasma, cell volume, plasma proteins and hemoglobin content of whole blood. These observations confirm the conception of a blood dilution during pregnancy with prompt elimination of the excess water during parturition and the puerperium. There is evidence that the body attempts to compensate for this dilution by increasing the hemoglobin content of individual cells, which consequently show an increased specific gravity. The slight anemia of normally pregnant women recognized by clinical methods is only apparent and can be explained by physiologic dilution of the blood associated with an increased blood volume, and by the further dilution of finger-prick blood with the fluid from edematous subcutaneous tissues.

American Journal of Pathology, Boston

12: 1-140 (Jan.) 1936

*Pathologic Changes in Bone Marrow in Agranulocytosis. R. C. Darling, F. Parker Jr. and H. Jackson Jr., Boston.—p. 1.

Spectrographic Study of Leprous Lesions. E. V. Cowdry, L. F. Heimburger and P. S. Williams, St. Louis.—p. 13.

*Lesions in Auriculoventricular Conduction System Occurring in Rheumatic Fever. L. Gross and B. M. Fried, New York.—p. 31.

Benign and Malignant Hypertension and Nephrosclerosis: Clinical and Pathologic Study. P. Kimmelstiel and C. Wilson, Boston.—p. 45.

Intercapillary Lesions in Glomeruli of Kidney. P. Kimmelstiel and C. Wilson, Boston.—p. 83.

Inflammatory Lesions in Glomeruli in Pyelonephritis in Relation to Hypertension and Renal Insufficiency. P. Kimmelstiel and C. Wilson, Boston.—p. 99.

Study of Adrenal Cortex Morphology. R. L. Zwemer, New York.—p. 107.

Chemical Analysis of Atherosclerotic Lesions in Human Aortas. Pearl M. Zeek, Cincinnati.—p. 115.

Treponema Pallidum in Syphilitic Aortic Valvulitis of a Congenitally Bicuspid Valve with Subaortic Stenosis: Report of Case. A. B. Richter, Cleveland.—p. 129.

Changes in Bone Marrow in Agranulocytosis.—From an analysis of their twenty-five typical cases of agranulocytosis, of which they had adequate and properly prepared sections of bone marrow, it appears to Darling and his associates, as Fitz-Hugh and Krumbhaar first suggested, that in the rapidly fatal cases the bone marrow shows stem cell hyperplasia and myeloid anakmesis (maturation arrest) without notable changes in the red cell series and that, as the survival of the patient becomes longer, the stem cells gradually and somewhat irregularly give way to plasma cells and lymphocytes. It may be hypothesized that early in the disease there is a compensatory increase of the number of normally occurring stem cells (myeloblasts) in a vain effort to overcome the maturation arrest and that these stem cells disappear in the latter stages and a coincident increase of lymphocytes and plasma cells occurs.

Lesions in Cardiac Conduction System in Rheumatic Fever.—Gross and Fried examined 110 human hearts to determine the nature and frequency of the lesions occurring in the

Tawara node and bundle of His in rheumatic fever. Sixty of these cases represent active rheumatic fever, twenty-five cases inactive rheumatic fever and twenty-five cases nonrheumatic material. In active rheumatic fever there occurs a variety of inflammatory and vascular phenomena within the horizontal conduction system as well as in the surrounding tissue. Even when studied in few representative specimens from each bundle, the incidence of these lesions was approximately 66 per cent in the active material. It is probable that a study of more sections would have indicated a higher incidence. Very few of these lesions are of a specific or highly characteristic nature. The inactive rheumatic cases showed few pathologic changes. This is in keeping with the functional differences observed as between these two groups. There is a high incidence of inflammatory lesions in the collagenous extension of the septum fibrosum. The possible mechanisms concerned with the spread of the rheumatic infection to the bundle tissue is discussed.

American Journal of Physiology, Baltimore

114: 255-514 (Jan. 1) 1936. Partial Index

Age and Tissue Respiration. J. M. Pearce, New York.—p. 255.

Muscle Tonus, Intramuscular Pressure and Venopressor Mechanism. Y. Henderson, A. W. Oughterson, L. A. Greenberg and C. P. Searle, New Haven, Conn.—p. 261.

Air Movement as Stimulus to Skin, Reflex Effects on Muscle Tonus, and Indirectly on Circulation of Blood; Also Effects of Therapeutic Baths. Y. Henderson, A. W. Oughterson, L. A. Greenberg and C. P. Searle, New Haven, Conn.—p. 269.

Carbohydrate Metabolism of Heart During Pancreas Diabetes. H. E. Himwich, W. Goldfarb and J. F. Fazekas, New Haven, Conn.—p. 273.

Various Properties of Thromboplastin (Aqueous Tissue Extracts). A. J. Quick, Milwaukee.—p. 282.

Adrenal Cortex and Endogenous Carbohydrate Formation. G. Evans, Philadelphia.—p. 297.

Physiologic Mechanisms Involved in Clinical Measure of Phase Angle: Circuits Simulating Phase Angle Properties of Body; Correlations with Experimental Findings in Normal and Pathologic States. A. Barnett, New York, and S. Bagno, Brooklyn.—p. 366.

Metabolic Studies in Osteoporosis. Mildred Adams, W. M. Boothby and A. M. Snell, Rochester, Minn.—p. 383.

Reduction of Litter Size and Maintenance of Pregnancy in Oophorectomized Rat: Evidence Concerning Endocrine Rôle of Placenta. H. O. Haterius, Cold Spring Harbor, Long Island, N. Y.—p. 399.

Nature of Ventricular Alternation Resulting from Reduced Coronary Blood Flow. H. D. Green, Cleveland.—p. 407.

Mechanism of Hematopoietic Action of Cobalt. J. M. Orten, New Haven, Conn.—p. 414.

Vitamin G Concentrates as Preventives Against Black-Tongue, with Parallel Studies of Same Concentrates in Diets of White Rats. L. E. Booher, New York, and G. H. Hansmann, Washington, D. C.—p. 429.

*Circulatory and Visual Effects of Oxygen at Three Atmospheres Pressure. A. R. Behnke, H. S. Forbes and E. P. Motley, Boston.—p. 436.

Daily Erythrocyte Counts in Menstrual and Intermenstrual Periods. Christianna Smith, South Hadley, Mass.—p. 452.

Evidence of Nonsegmental Character of Spinal Reflexes from an Analysis of Cephalad Effects of Spinal Transection (Schiff-Sherrington Phenomenon). T. C. Ruch, New Haven, Conn.—p. 457.

Cardiovascular Responses of Preadolescent Boys to Muscular Activity. E. C. Schneider and C. B. Crampton, Middletown, Conn.—p. 473.

Influence of Divided Dosage of Gonadotropic Extracts in Immature Male Rat. F. Bischoff, Santa Barbara, Calif.—p. 483.

Changes in Permeability of Red Corpuscles in Shed Blood to Glucose. J. M. D. Olmsted, Berkeley, Calif.—p. 488.

Values for Number, Size and Hemoglobin Content of Erythrocytes in Normal Dogs, Rabbits and Rats. M. M. Wintrobe, H. B. Shumacker Jr. and W. J. Schmidt, Baltimore.—p. 502.

Effect of Estrin on Activity of Anterior Lobe of Pituitary. H. L. Fevold, F. L. Hisaw and R. Greep, Madison, Wis.—p. 508.

Effects of Oxygen at Pressure of Three Atmospheres.—Behnke and his co-workers observed that oxygen at a pressure of three atmospheres (30 pound gage) can be breathed by healthy men for three hours without distressing symptoms. During the fourth hour a progressive contraction of the visual field with dilatation of the pupils and some impairment in central vision is the most constant criterion of oxygen toxicity. Circulatory changes indicative of peripheral vascular constriction are associated with the visual impairment and culminate during the fourth hour in an abrupt rise of systolic and diastolic blood pressure, increase in pulse rate and extreme pallor of the face. At this stage the subjects experience dizziness and a feeling of impending collapse. A condition of partial stupefaction is indicated by the facial expression and the slowed mental responses. Rapid and complete recovery attended by a feeling of alertness and stimulation takes place within an hour after air is substituted for oxygen.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

35: 1-144 (Jan.) 1936

*Hereditary Occurrence of Enlarged Parietal Foramina: Their Diagnostic Importance. O. H. P. Pepper and E. P. Pendergrass, Philadelphia.—p. 1.

Osteolytic Lesions Involving Calvarium. E. P. Pendergrass and A. A. de Lorimier, Philadelphia.—p. 9.

Metabolic Craniopathy. S. Moore, St. Louis.—p. 30.

Extrapericardial Fat Bodies. F. G. Kautz, Tucson, Ariz., and M. Pinner, Oneonta, N. Y.—p. 40.

Congenital Cysts of Lungs. E. Freedman, Cleveland.—p. 44.

Simple Cyst of Pleura: Report of Case. E. Freedman and M. A. Simon, Cleveland.—p. 53.

*Three Zones of Simple Pleural Effusions. J. Kaunitz, New York.—p. 57.

Large Aneurysm of Descending Thoracic Aorta with Retroposeau Extension. B. S. Putts and R. D. Bacon, Erie, Pa.—p. 59.

Roentgenologic Diagnosis of Abscess on Concave Surface of Liver. J. M. Miles, New Orleans.—p. 65.

Rectification of Errors in Diagnosis of Movement of Ureteral Calculi. W. B. Firor, Baltimore.—p. 70.

Hodgkin's Disease of Bone Marrow and Liver Without Apparent Involvement of Lymph Nodes. H. Herscher, Hines, Ill.—p. 73.

Technic of Encephalography, with Especial Reference to Use of Apparatus. T. J. C. Von Storch, Boston.—p. 78.

Technic for Roentgen Irradiation of Inaccessible Cancer of Skin. H. H. Ashbury, Baltimore.—p. 93.

Separate and Combined Use of Artificially and Naturally Produced Rays. W. H. Cameron, New York.—p. 96.

Hereditary Occurrence of Enlarged Parietal Foramina.—The interest of Pepper and Pendergrass in enlarged parietal foramina was aroused by the presence of the anomaly in a patient in the medical ward of the Hospital of the University of Pennsylvania. The patient stated that other members of his family had the same anomaly. The authors were able to examine the patient's mother, his son, his sister and her four children. The patient's grandmother was dead, but the members of the family all were positive that they had frequently felt the "holes" in her head. The mother exhibited very large foramina, as did the son. These were easily found by palpation. The patient's sister had bilateral foramina which, while small, were larger than normal. This sister has four children. The oldest, a boy, has foramina similar to his mother's; the second child, a son, has openings measuring 7 mm. on the right and 3 mm. on the left. Of the two younger girls the elder has bilateral foramina of top normal size, the younger of normal size. A search of the literature proves the authors' observations not unique, for they have found the report of one similar family. Also in the older literature there are a few hints in this direction. The most important report is that of Goldsmith in 1922. He points out that the inheritance does not seem to fall in line with any of the usual laws of inheritance. He believes that the openings are larger in the young and that at first it is a single opening, which is later divided by the ossification of a median bridge. He also believes that the defect may disappear as adult life is reached. Some support for these opinions is supplied by the authors' study of still another family exhibiting large foramina. One of their roentgenologic staff readily recognized the lesion in the films exhibited at a roentgenologic meeting. The defects shown in the skull films of a young girl were presented as possibly due to Hand-Schüller-Christian's disease, but to one who had once seen the picture of enlarged parietal foramina the diagnosis was obvious. In addition to the girl they have been able to examine her mother, her sister, two aunts and three cousins. Also the family insist the child's grandfather has the same "holes." One aunt has demonstrable foramina, but the other and the cousins are normal. The child's sister, only 7 months of age, has a large central defect. The child herself, 2 years of age, shows a large merged defect and also the not uncommon anomaly of the occipital bone called by some the "Inca bone." Apparently the defect is an erratic hereditary anomaly of ossification, bearing no relation to any disease of the skeleton. There seems to be little support for the claims made by several writers that it results from increased intracranial pressure and is more apt to occur in those with small skulls. The anomaly is of only slight importance clinically, although the defects might be found and misinterpreted. The cranial defects with which enlarged parietal foramina might be confused are Hand-Schüller-Christian's disease, syphilis, secondary neoplasm, trephine openings, dysostosis (cleidocranial) of the cranial bones, meningocele and osteoporosis circumscripta. The roentgenologist will usually have the responsibility of making the differ-

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ential diagnosis and will have the opportunity of identifying such instances of anomalous parietal foramina as he may encounter.

Three Zones of Simple Pleural Effusions.—Kaunitz describes the three zones of simple pleural effusions from below upward as follows: 1. A radiopaque zone, made up of a large volume of liquid displacing the lung upward and casting a dense curved roentgenographic shadow. 2. A radiotranslucent zone, consisting of a moderate volume of liquid interposed between the lung and chest wall and casting a moderately dense roentgenographic shadow. 3. A radiotransparent zone, representing a film of liquid too thin to cast a roentgenographic shadow.

Annals of Internal Medicine, Lancaster, Pa.

9: 823-1042 (Jan.) 1936

Chemical Studies in Myasthenia Gravis. Mildred Adams, M. H. Power and W. M. Boothby, Rochester, Minn.—p. 823.
Metabolism of Creatine and Creatinine in Muscle Disease. A. T. Milhorat and H. G. Wolff, New York.—p. 834.
*Experimental Thrombopenic Purpura: Cytologic and Physical Changes in Blood. L. M. Tocantins, Philadelphia.—p. 838.
Comparison of Rate of Absorption from Normal and Burned Tissues. E. C. Mason, Pearl Paxton and H. A. Shoemaker, Oklahoma City. —p. 850.
Studies in Multiple Sclerosis: VIII. Etiologic Factors in Multiple Sclerosis. T. J. Putnam, Boston.—p. 854.
Correlations of Endocrine System. D. L. Thomson, Montreal.—p. 864.
*Arteriosclerosis and Hypertension in Diabetes. H. F. Root and T. P. Sharkey, Boston.—p. 873.
Present Status of the Problem of "Rheumatism" and Arthritis: Review of American and English Literature for 1934. P. S. Hench, Rochester, Minn.; W. Bauer, Boston; A. A. Fletcher, Toronto; D. Ghrist, Los Angeles; F. Hall, Boston, and T. P. White, Charlotte, N. C.—p. 883.

An Experimental Thrombopenic Purpura.—Tocantins describes various changes in the blood of dogs with experimental thrombopenic purpura and analyzes the extent of the correlation between these changes and the external manifestations of the disease. Morphologic variations in the platelets were regularly observed soon after a diminution in their level in the peripheral blood as well as preceding their return to normal after a period of thrombopenia. The volume and rate of output of blood per unit time from a skin wound were increased and irregular during the acute phase of purpura and became markedly decreased in the first few days following recovery. The highest correlations found were between the number of platelets and the degree of clot retraction, and between the latter and the mean bleeding time. The correlations were of such a degree as to indicate that factors other than those under analysis will be found to play important parts in the mechanism of normal and impaired hemostasis.

Arteriosclerosis and Hypertension in Diabetes.—Root and Sharkey say that there is an excess of arteriosclerosis in the coronaries, aorta and legs in diabetic patients as compared with nondiabetic subjects. Among 175 diabetic deaths, hypertension occurred in 54 per cent. All the characteristic vascular lesions of diabetes (retinal hemorrhages, coronary occlusion, gangrene) occurred in cases of diabetes without hypertension as well as in cases with hypertension. The incidence of these vascular complications was greater in the hypertensive group, as if hypertension acted as an additional factor increasing greatly the tendency to such lesions. The association of large vessel arteriosclerosis constantly whenever arteriosclerosis was present suggested that changes in the large arteries occurred first. The etiology of arterial hypertension is divided under five heads: (1) circulating substances, including hormones; (2) influence of the nervous system; (3) structural changes in the vascular system; (4) infections and allergy, and (5) constitutional factors. There is no clear evidence in the authors' cases of unusual psychic or nervous make up on which to base the theory that hypertension occurred first and vascular disease followed. Similarly the rôles of infections and allergy lack support. In diabetes, infections of the kidneys are common and hypertension may follow such infections. Somewhat more reasonable is the theory that the spotty lesions of arteriosclerosis represent the results of low grade and repeated bacterial invasion or degeneration due to bacterial toxins. That the predisposition to diabetes is inherited as a mendelian recessive characteristic has received support from the studies of Pincus and White. The authors' belief is that the premature and excessive development of vascular disease occurs predominantly in muscular arteries under the greatest physical strain, especially in obese patients, and is due to the metabolic changes of diabetes. The coronary and leg arteries are chiefly involved, although changes in the arterioles also are found. The necessity of insulin in the glycogen metabolism of muscle and especially for the completion of the lactic acid cycle must be of some significance in this connection, although the details are as yet undemonstrated. The importance of the disordered lipid metabolism, more easily demonstrated by present chemical and pathologic methods, is better understood. Hypertension then is an important contributing factor in the clinical course of the disease because it imposes additional strain, even when the patient has lost his obesity, and accentuates greatly the vascular changes in coronary and leg arteries. A further suggestion as to the metabolic factor in the arteriosclerosis of diabetes is the fact that with modern treatment with insulin and diet more normally balanced the frequency of arteriosclerosis in the legs of diabetic children is diminishing. The objective in the future should be the earlier possible diagnosis of diabetes and its more aggressive treatment. The final explanation will take full cognizance of the interrelationship of the endocrine glands, of the parts played by preexistent obesity, by infections, especially of the kidneys, and by inheritance.

Archives of Dermatology and Syphilology, Chicago

33: 209-412 (Feb.) 1936

Histiocytoma Cutis. F. E. Schear and M. R. Caro, Chicago.—p. 209.
Phenolphthalein Dermatitis: Experimental Study Including Reproduction of Eruption in Skin Transplants. F. C. Knowles, Philadelphia; H. B. Decker and R. P. Kandle, Camden, N. J.—p. 227.
*Extensive Pigmented Nevus Associated with Primary Melanoblastosis of Leptomeninges of Brain and Spinal Cord: Report of Case. E. W. Netherton, Cleveland.—p. 238.
Hodgkin's Disease of Scalp: Report of Case. N. M. Wrong, Toronto. —p. 259.
Mycosis Fungoides with Poikiloderma-like Symptoms. E. A. Oliver, Chicago.—p. 267.
*Direct Microscopic Examination of Skin: Method for Determination of Presence of Fungi. J. H. Swartz, Boston, and N. F. Conant, Durham, N. C.—p. 291.
Study of Group of Handlers of Arsenic Trioxide. H. G. Irvine and D. D. Turnacliff, Minneapolis.—p. 306.
Lichen Simplex Chronicus: One Hundred and Seventy Consecutive Cases Encountered in Private Practice. D. E. H. Cleveland, Vancouver, B. C.—p. 316.
Psoriasis: Brief Historical Review. P. E. Becker, New York.—p. 327.
Incidence of Dermatophytosis at the Boston City Hospital. J. W. Williams, Cambridge, Mass.—p. 335.

Extensive Pigmented Nevus.—Netherton reports a case of extensive pigmented nevus associated with primary diffuse melanoblastosis of the meninges. The correlation of these observations is difficult and depends on the ultimate solution of the origin of nevi and of the debated questions concerning the embryologic development of the meninges. It is possible that the nevus and the changes in the meninges are related congenital malformations resulting from early developmental disturbances in the ectoderm and that such lesions may be considered as filling the gap that exists between extensive benign melanomas of the skin and primary melanoma of the meninges. The diffuse and extensive involvement of the piarachnoid interfered with absorption of the cerebrospinal fluid sufficiently to cause fatal hydrocephalus.

Direct Microscopic Examination of Skin.—Swartz and Conant state that the treatment of scrapings from the skin with 5 per cent potassium hydroxide, followed by washing with water and staining in lactophenol and cotton blue, makes possible the easy determination of the presence of fungi. This method of preparing microscopic specimens for examination is simple in that it adds only two steps to the more common method using potassium hydroxide and is effective in that the fungi are definitely stained while the various confusing artefacts are eliminated from the picture. This is particularly true of the mosaic growth that occurs commonly in preparations made with potassium hydroxide. This material does not seem to be the result of treatment with potassium hydroxide, since it can be found in scales treated with xylene or with chloral hydrate and acacia. It was found to be soluble in ether, 95 per cent alcohol, absolute alcohol and phenol. It could not be stained with sudan III or scarlet red or blackened with osmic acid. While fungi were readily stained with lactophenol and cotton blue, mosaic material occurring in the same

preparation did not stain and was, in fact, entirely eliminated. In the presence of polarized light there was no evidence that the mosaic material was composed of crystalloid forms. Whatever the nature of the mosaic growth, the authors feel that they have presented sufficient proof that it is not a fungus. The staining of normal fungi in scales with lactophenol and cotton blue, the failure to find partially degenerated forms in the same preparation in which both mosaic material and fungi occurred, and the failure to find morphologic connections between normal hyphae and these mosaic forms seem to disprove convincingly the theory that this material is a degenerate form of fungus.

Archives of Otolaryngology, Chicago

23: 1-136 (Jan.) 1936

*Tuberculosis of Larynx Requiring Tracheotomy. M. C. Myerson, New York.—p. 1.

Research Report on Experimental and Clinical Sinusitis. R. A. Fenton and O. Larsell, Portland, Ore.—p. 18.

Puncture of Internal Jugular Vein in Cases of Mastoiditis. L. M. Freedman, Boston.—p. 29.

*Ventricular Puncture: Preliminary to Operation for Acute Suppurative Petrositis. S. Rosen and A. Kaplan, New York.—p. 35.

Acoustic Stimulation of Inner Ear by Application of Sound into Cavity of Middle Ear. H. Kobrak, J. R. Lindsay and H. B. Perlman, Chicago.—p. 39.

Histologic Variations in Middle and Inner Ears of Patients with Normal Hearing. L. M. Polvogt, Baltimore.—p. 48.

Histologic Changes in Temporal Bone in Osteitis Deformans (Paget's Disease). J. G. Wilson and B. J. Anson, Chicago.—p. 57.

Intra-Uterine and Neonatal Otitis: Study of Seven Cases Including a Case of Otitic Meningitis. F. A. Hemsath, New York.—p. 78.

Vessels of Stria Vascularis, with Especial Reference to Their Function. J. J. Belemer, Baltimore.—p. 93.

Laryngeal Tuberculosis Requiring Tracheotomy.—Myerson states that tracheotomy was performed in nine of 728 cases of laryngeal involvement in a total of 6,516 cases of pulmonary tuberculosis observed during a period of three years. Not every patient with pulmonary tuberculosis who becomes hoarse has specific involvement of the larynx. Several patients referred for treatment of tuberculosis because they were hoarse were found to have a nontuberculous lesion (cyst, vascular polyps, paralysis and carcinoma). Not every patient with pulmonary tuberculosis who is hoarse has tuberculosis of the larynx, although this should be suspected. Tracheotomy does not indicate a hopeless prognosis, nor does the presence of laryngeal involvement. Laryngeal involvement diminishes the prospect of recovery but does not doom the patient. Laryngeal obstruction is invariably caused by a productive lesion. The most frequent cause of laryngeal stenosis is a position of the vocal cord in the midline or almost in the midline, which is caused by fixation of the crico-arytenoid joint. The prognosis is always better in those cases in which the pulmonary lesions show a tendency to recovery and in which the sputum contains few or no tubercle bacilli. The same conditions influence the prospect in a case of tuberculous involvement of the tracheotomy wound. When the tracheal wound comes in contact with a large amount of bacillus-laden sputum, it usually becomes infected.

Ventricular Puncture.—To facilitate the lifting of the dura from the bone in operations for acute suppurative petrositis, preliminary puncture of the lateral ventricle on the side opposite to the petrositis was suggested and tried by Kaplan. In most neurosurgical clinics the lateral ventricle is tapped during some stage of every suboccipital craniotomy. The reduced dural tension that follows is of great help in the exposure that Rosen and Kaplan use. To their knowledge, this preliminary step of ventricular puncture as part of the operation for suppuration of the petrous pyramid has not been mentioned or suggested heretofore. The ease with which the dura is stripped from the bone after emptying of the opposite lateral ventricle leads them to present the practical and theoretical advantages of the procedure. 1. Emptying of the lateral ventricle in the hands of an experienced neurosurgeon is attended with little risk. More than 100 consecutive ventriculographies have been performed at the Mount Sinai Hospital without any serious complication. The fact that the procedure was performed on patients in whom an intracranial neoplasm was suspected, and in many instances found, indicates that the danger of simple drainage of the lateral ventricle is almost negligible. 2. In the cases in which petrositis is suspected, one cannot always be certain that an abscess of the brain has been excluded. Drainage of spinal fluid, particularly if the abscess is situated in the cerebellum, may be followed by disastrous results. 3. Ventricular puncture may give a clue as to the presence of a cerebral abscess. Evidence of a dilated or displaced ventricle should make one suspicious of an expanding or obstructing cerebral lesion. 4. In doubtful cases in which exploration has failed to prove the presence of petrous suppuration, subsequent ventriculography can be performed with ease through an already existing trephine opening.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

17: 1-64 (Jan.) 1936

*Response of Essential Hypertension and Diabetes Mellitus to Small Doses of X-Ray. J. H. Hutton, W. L. Culpepper and E. C. Olson, Chicago.—p. 7.

New Vaginal Diathermy Electrode. E. A. Horowitz and W. Bierman, New York.—p. 15.

Treatment of Carcinoma of Lip. L. Hollander, Pittsburgh.—p. 17.

New Air-Spaced Cuff Electrode. C. K. Gale, New York.—p. 25.

Present Trends in Management of Hypertrophied Prostate. I. R. Sisk, Madison, Wis.—p. 27.

Diathermy in Diseases of Eye. O. B. Nugent, Chicago.—p. 37.

Response of Essential Hypertension and Diabetes to X-Rays.—Hutton and his co-workers have had under their supervision 177 cases of essential hypertension, twenty-one cases of hypertension and diabetes existing in the same patient and forty-six cases of diabetes mellitus without hypertension. Their use of x-rays in the treatment of diabetes mellitus and essential hypertension is based on the belief that these two syndromes are due to some abnormal function of the pituitary or adrenals and that this abnormality can be corrected by irradiation of these structures. Among the patients having essential hypertension, forty-three either had an inadequate amount of treatment or could not be followed. Of those who had an adequate amount, ninety-nine definitely improved both as to relief of symptoms and as to reduction of blood pressure. Of the twenty-one patients having hypertension and diabetes, eight were improved as to both conditions, seven as to hypertension only and three as to diabetes only, and three either had an insufficient amount of treatment or could not be followed. Of the forty-six diabetic patients, ten received an inadequate amount of treatment. Of the remaining thirty-six, twelve were unimproved, five reported symptomatic improvement but without change in their carbohydrate tolerance, and nineteen experienced some improvement both symptomatically and as regards carbohydrate tolerance. The best responses have been obtained with small doses of x-rays. Of 159 cases reported as being treated by other men, 137 are said to have experienced improvement following treatment. The final evaluation of this form of treatment depends on time and the accumulation of a large series of cases. The authors do not offer the treatment as a cure but as an addition to the treatment of these two syndromes.

Endocrinology, Los Angeles

20: 1-136 (Jan.) 1936

Action of Anterior Pituitary Hormones on Basal Metabolism of Normal and Hypophysectomized Pigeons and on Paradoxical Influence of Temperature. O. Riddle, Guinevere C. Smith, R. W. Bates, C. S. Moran and E. L. Lahr, Cold Spring Harbor, N. Y.—p. 1.

Uterine Response to Pitocin. M. R. White and J. P. Pratt, Detroit.—p. 17.

Studies on Ovarian Dysfunction: III. Menopause. F. Albright, Boston.—p. 24.

Experimental Production of Ovarian Refractoriness to Anterior Hypophyseal Stimulation in Monkey. F. L. Hisaw, R. Hertz and H. L. Fevold, Madison, Wis.—p. 40.

Effects of Two Ovarian Hormones on Castrated Human Females. C. A. Elden, Rochester, N. Y.—p. 47.

Caloriegenic Action of Extracts of Anterior Lobe of Pituitary in Man. W. O. Thompson, S. G. Taylor 3d, Phoebe K. Thompson, Chicago; S. B. Nadler, New Orleans, and Lois F. N. Dickie, Chicago.—p. 53.

Endocrine Dwarfism: Third Report. R. L. Schaefer, Detroit.—p. 64.

Clinical Significance of Electrical Impedance Determination in Thyroid Disorders. J. W. Horton, Boston; A. C. Van Ravenswaay, Boonville, Mo., S. Hertz and G. W. Thorn, Boston.—p. 72.

Fundamental Similarity in Development of Gonadotropic Response in the Immature Guinea-Pig and Rat. S. C. Freed and A. Coppock, Chicago.—p. 81.

Chronic Hypoglycemia. M. A. Goldzieher, New York.—p. 86.

Influence of Cortico-Adrenal Extract on Course of Bacterial Intoxications in Guinea-Pigs. R. W. Whitehead and C. A. Fox, Denver.—p. 93.

Reid Hunt Reaction and the Thyrotropic Hormone. H. Wiesbader, New York.—p. 100.

Investigation of Hormone Content of Saliva. A. I. Weisman and C. C. Yerbury, New York.—p. 103.

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Journal of Allergy, St. Louis

7: 101-202 (Jan.) 1936

Some Observations on Effect of Circulation on Skin Reactions. F. F. Furstenberg and L. N. Gay, Baltimore.—p. 101.
Intracutaneous Tests in Normal Individuals: Analysis of One Hundred and Fifty Subjects. M. H. Grow and N. B. Herman, Baltimore. —p. 108.
Skin Exciting Activity of a Ragweed Pollen Extract as Measured by Its Content of Three Nitrogen Fractions. H. Osgood and R. S. Hubbard, Buffalo.—p. 112.
Air Cleaning as an Aid in Treatment of Hay Fever and Bronchial Asthma. L. H. Criep and M. A. Green, Pittsburgh.—p. 120.
Ultrafiltration of House Dust Extracts. W. C. Spain and J. M. Newell, New York.—p. 134.
*Experiments in Poison Ivy Sensitivity. H. Field and M. B. Sulzberger, New York.—p. 139.
Sensitivity to Bacillus Dysenteriae. B. G. Efron and D. N. Silverman, New Orleans.—p. 145.
Studies on Relation of Micro-Organisms to Allergy: III. Year's Survey of Daily Mold Spore Content of Air. S. M. Feinberg and H. T. Little, Chicago.—p. 149.

Experiments in Sensitivity to Poison Ivy.—Field and Sulzberger experimentally sensitized a person presumably never previously in contact with poison ivy by the application of skin tests with an 8 per cent acetone extract of the leaf. The incubation period required for the development of this induced eczematous hypersensitivity was from nine to ten days. When the subject was given patch tests after the skin had become sensitized, the time required for the development of the clinically manifest skin reaction regularly was approximately from twenty-four to seventy-two hours, depending somewhat on the concentration of the extract applied. The sensitization was of such a degree that the individual, previously not reacting at forty-eight hours even to concentrations as high as 1:100, later reacted strongly to a 1:1,000,000 dilution of the extract employed. The subject showed marked variations in reaction to the same extracts on repeated patch testing. There were variations depending on the time of the test and also constant variations depending on the skin area tested. The result not only warns against drawing too definite conclusions from one or a few patch tests applied at the same time but also serves to explain certain discrepancies of results and unexplained variations in reactions, as well as false negatives.

Journal of Experimental Medicine, New York

63: 157-302 (Feb. 1) 1936

Change in Rabbit Fibroma Virus Suggesting Mutation: I. Experiments on Domestic Rabbits. C. H. Andrewes, Hampstead, London, England. —p. 157.
Id.: II. Behavior of Variant Virus in Cottontail Rabbits. R. E. Shope, Princeton, N. J.—p. 173.
Id.: III. Interpretation of Findings. C. H. Andrewes, Hampstead, London, England, and R. E. Shope, Princeton, N. J.—p. 179.
Group Specific A Substance in Horse Saliva: II. K. Landsteiner, New York.—p. 185.
Pathogenesis of Pneumococcic Infections in Mice. G. Rake, New York. —p. 191.
*Respiratory versus Gastro-Intestinal Infection in Poliomyelitis. S. Flexner, New York.—p. 209.
Study of Generalized Vaccinia in the Chick Embryo. G. J. Buddingh, Nashville, Tenn.—p. 227.
Studies on Etiology of Rabbit Pox: I. Isolation of Filtrable Agent: Its Pathogenic Properties. Louise Pearce, P. D. Rosahn and C.-K. Hu, New York.—p. 241.
Id.: II. Clinical Characteristics of Experimentally Induced Disease. P. D. Rosahn, C.-K. Hu and Louise Pearce, New York.—p. 259.
Blood Plasma Protein Regeneration Controlled by Diet: Effects of Plant Proteins Compared with Animal Proteins: Influence of Fasting and Infection. J. B. McNaught, V. C. Scott, F. M. Woods and G. H. Whipple, Rochester, N. Y.—p. 277.

Respiratory versus Gastro-Intestinal Infection in Poliomyelitis.—Flexner points out that the debated problem of the gastro-intestinal versus the respiratory mode of infection in poliomyelitis has been restudied by several investigators recently, with conflicting conclusions. Toomey's methods are so severe and artificial that his results cannot be regarded as simulating a natural mode of infection. The author repeated the tests of Kling and Levaditi, but in a far more comprehensive manner than was followed by them, and, like Clark and his associates, who early repeated them, he has failed to confirm them. He does not find Macacus cynomolgus and rhesus to differ in any essential way in their response to the presence of the virus of poliomyelitis in the body. Cynomolgi do not respond to virus introduced into the stomach when contamination of the buccal and nasal cavities is avoided; they respond, as do rhesi, to virus directly injected into the intestine when the virus passes into the intestinal wall and makes the necessary nerve fiber contact. Both Macacus cynomolgus and Macacus rhesus that have resisted feedings of virus are subject to nasal instillations of the same strains of virus and in the same degree. On the basis of his present experiments the author reaffirms the conclusion previously arrived at by him and his co-workers, and confirmed independently by investigators in Europe and America, that the only established port of entry of the virus of poliomyelitis into the central nervous system of man is the nasal membrane, and especially the olfactory nervous areas in that membrane.

Journal of Infectious Diseases, Chicago

58: 1-128 (Jan.-Feb.) 1936

Opsonins for Diplococcus Morbillorum and for Streptococcus Scarlatinae in Convalescent Measles Serum, Convalescent Scarlet Fever Serum and Placental Extract. Ruth Tunnicliff, Chicago.—p. 1.
Demonstration of Capsules About Hemolytic Streptococci with India Ink or Azo Blue. E. M. Butt, C. W. Bonynge and R. L. Joyce, Los Angeles.—p. 5.
Failure to Infect Monkeys with Poliomyelitis Virus Through Isolated Intestinal Loops. E. H. Lennette and N. P. Hudson, Chicago.—p. 10.
Studies on Bactericidal Action of Bovine Whole Blood and Serum Toward Brucella Abortus and Brucella Suis. M. R. Irwin, B. A. Beach and F. N. Bell, Madison, Wis.—p. 15.
Spontaneous Contamination of Bacterial Culture by Organism Resembling Hartmanella Castellanii: Note. L. E. Shinn and P. B. Hadley, Pittsburgh.—p. 23.
Growth Stimulating Factors for Micro-Organisms. M. Sahyun, P. Beard, E. W. Schultz, J. Snow and E. Cross, Stanford University, Calif. —p. 28.
Studies on Extraction of Precipitable Substance from Genus Brucella. Dorothy O. Reiter, Chicago.—p. 45.
Salivary Gland Disease of Mice. Juanita Thompson, New York.—p. 59.
Destruction of Tubercle Bacilli Within Phagocytes in Vitro. B. J. Clawson, Minneapolis.—p. 64.
Rural Typhoid Fever. B. Johan, Budapest, Hungary.—p. 70.
Studies on Inflammation: XI. Invasiveness and Virulence in Relation to Resistance. V. Menkin, Boston.—p. 81.
Effect of Dissociation of Streptococci on Their Fibrinolytic and Anticlotting Activity. Ruth Tunnicliff, Chicago.—p. 92.
Properties of Homogenized Herpes Virus. C. W. Buggs and R. G. Green, Minneapolis.—p. 98.
*Comparative Observations on Streptococci from Human Gastro-Intestinal Ulcerations and from Bovine Mastitis. J. C. Torrey and Elizabeth Montu, New York.—p. 105.
*Pathogenesis of Actinomycosis: Recovery of Actinomyces-like Organisms from the Normal Mouth. F. T. Lord and L. D. Trevett, Boston. —p. 115.
Studies on Bacterial Nutrition: II. Distribution of Growth Stimulating Factor in Animal and Plant Tissues. S. A. Koser, F. Saunders, I. I. Finkle and R. C. Spoelstra, Chicago.—p. 121.
Liquefaction of Gelatin by Salmonella, Type Dar-es-Salaam: Note. E. O. Jordan, Chicago.—p. 128.

Streptococci from Human Gastro-Intestinal Ulcerations and from Bovine Mastitis.—Torrey and Montu made a comparative study of authentic strains of the Bargen diplostreptococcus of ulcerative colitis, of selected enterococci associated with the same disease, of representative strains of Saunders streptococcus of gastroduodenal ulcers and of streptococci associated with bovine mastitis, which leads them to the following conclusions: The Bargen strains, although exhibiting certain features in common, such as the splitting of raffinose, differed greatly in resistance to heat and in their antigenic constitution as indicated by agglutination and agglutinin absorptions. One strain exhibited all the biochemical attributes of an enterococcus and three others the marked resistance to heat characteristic of the enteric streptococci. It would seem proper to classify them as variants of the enterococcus. The strains from gastric ulcers and gastric ulcer carcinoma tissue did not show as great a degree of cultural and serologic homogeneity as has been reported by Saunders for other series of cultures isolated from these sources. A connecting link with the Bargen group was indicated by the close serologic relationship of two of them to a type Saunders strain; the other three Bargen strains were agglutinated only to a slight degree, if at all, by the four Saunders strain serums. With one exception, none of the ten Saunders strains split raffinose. Biochemical and serologic tests indicated only exceptionally any relationship between the streptococci associated with ulcerative processes in the human gastro-intestinal tract and Streptococcus mastitidis of bovine origin. On the other hand, three streptococcus strains from mastitis milk not related

culturally or serologically to Streptococcus mastitidis exhibited such relationships to two enterococcus strains from ulcerative colitis and to certain of the Saunders peptic ulcer and carcinoma strains. These and other observations suggest a bovine origin for certain enterococcus-like organisms capable of invading human tissues.

Pathogenesis of Actinomycosis. — The aerobic-anaerobic organisms isolated by Lord and Trevett from the normal mouth appear to be identical with the actinomyces of the Wolff-Israel type in morphology and staining reaction. The character of their initial growth in bouillon, the readiness with which growth occurs under aerobic conditions, and failure to produce lesions characteristic of actinomycosis in animals make it impossible to classify them as belonging to the group of the actinomyces of the Wolff-Israel type. Organisms of the Wolff-Israel type have not been demonstrated outside the human or animal body and, in view of their biologic character, it is unlikely that multiplication takes place in the outside world under any ordinary conditions. Implantation of the parasite within the tissue through injury by a foreign body may be a factor. There are many instances recorded in the literature of the presence in the lesions of foreign bodies, mostly of vegetable nature, but in the majority of cases there is no history of a foreign body and none is found in the lesions. As the most common site of the disease is the region about the head and neck, with abdominal involvement next in frequency and the pulmonary form in a relatively small proportion of cases, the buccal cavity is to be regarded as the port of entry, with secondary invasion of the neighborhood by direct extension and the abdomen and lungs through swallowed or inhaled organisms.

Journal of Lab. and Clinical Medicine, St. Louis

21: 335-444 (Jan.) 1936

Reaction of Normoblastic Bone Marrow to Liver Extract. O. P. Jones, Minneapolis.—p. 335.
Studies of Plasma Proteins and Cholesterol in Normal White and Colored Individuals, and in Negroes with Arteriosclerosis. J. E. Andes, R. H. Kampmeier and C. C. Adams, New Orleans.—p. 340.
Relation of Thyroid Gland to Hematopoiesis: I. Experimental Total Thyroidectomy in Rabbit. J. C. Sharpe and J. D. Bisgard, Omaha.—p. 347.
Attempts to Apply Acetylene Method of Determining Cardiac Output to Dog. Alice B. Maltby and J. E. Williams, Cleveland.—p. 354.
*Prevention of Anaphylactic Shock Due to Horse Serum by Injection of BCG. E. M. Fraenkel and R. J. V. Pulvertaft, London, England.—p. 359.
*Study of Effects of Vaccine Injections on Skin Sensitivity. M. D. Tonart, W. S. Thomas and W. L. Tucker, New York.—p. 365.
Normal Range of Leukocyte Count Determined Weekly Over an Extended Period. I. R. Juster, Glens Falls, N. Y.—p. 376.
Significance of Serum Inorganic Sulfate Concentrations in Bright's Disease. W. S. Hoffman and J. V. Mansfield, Chicago.—p. 380.
Water Retention in Obesity as Determined by Volhard Dilution and McClure-Aldrich Tests. M. G. Wohl and L. N. Ettelson, Philadelphia.—p. 390.
*Effects of Hyperpyrexia on Human Blood Count, Blood Chemistry and Urine. J. F. Simon, Kansas City, Kan.—p. 400.
Blood Sugar in Uncomplicated and Untreated Neurosyphilis. P. G. Schube, Boston.—p. 404.
Mouse Protection Test for Standardizing Antimeningococcus Serums. Lucy Mishulow and Mildred Melman, New York, assisted by Rena Sklarsky.—p. 406.
Rapid Slide Test for Serologic Diagnosis of Typhoid and Paratyphoid Fevers. H. Welch and C. A. Stuart, Providence, R. I.—p. 411.
Rapid Method for Preparing Antigens for Wassermann Reaction. C. A. Hunter, Vermillion, S. D.—p. 417.
Dark Field Illumination in Diagnosis of Tuberculosis and Malaria. C. Goosmann, Cincinnati.—p. 421.
Blood Calcium Determination, Using Standard Calcium Chloride Solution. I. Schwartz, New York.—p. 425.
Mechanical Device for Preparing Fine Suspensions of Tubercle Bacilli and Other Micro-Organisms. H. J. Corper and M. L. Cohn, Denver.—p. 428.
Modifications in Colorimetric Determination of Plasma Proteins by Folin Phenol Reagent. D. M. Greenberg and Tatiana N. Mirolubova, Berkeley, Calif.—p. 431.
Simple, Efficient and Inexpensive Device for Drying Pipets and Other Laboratory Glassware. H. Foy, Salonika, Greece.—p. 435.

Prevention of Anaphylactic Shock.—Fraenkel and Pulvertaft found that repeated doses of BCG emulsion in saline solution produce a state in the sensitized animal which protects it from the anaphylactic shock due to horse serum. With the desensitizing or shocking dose much in excess of the fatal dose, the protection becomes less effective. Single small doses before or after sensitization do not induce the state of protection against serum shock. The injection of attenuated or killed bacilli or the production of abscesses with other bacteria does not induce any degree of protection.

Effects of Vaccine Injections on Skin Sensitivity.—It appears to Touart and his co-workers that an increase in skin sensitivity after vaccine injections occurs only when too large a dose of killed bacteria or some other factor, such as the use of a mixed vaccine, establishes a reservoir of antigenic material in or beneath the skin. Under these circumstances a lesion results which has the effect of a focus of infection. An increase in bacterial allergy may follow if a series of such injections is given. Treatment injections with vaccine reactions as guides are adjusted by the authors in bulk and concentration so as to produce a minimum of local reaction. Thus the production of focal lesions and an increase in hypersensitivity have usually been avoided. Retests in patients under treatment with mixed vaccines composed of one organism which produced a large late local reaction after the original skin tests and of others which produced smaller reactions have at times revealed increased skin sensitivity to some of these organisms. At other times it was seen after retests that reduction in skin sensitivity was proceeding at a more rapid pace in the case of some of the organisms contained in a mixed vaccine than in the case of others. Further injections of the same organisms, but as single strain vaccines, have appeared to rectify these inequalities. The intense local reaction produced by the organism in a mixed vaccine to which the patient is most sensitive seems to localize the less potent organisms within the reaction to such an extent that little desensitizing effect can be produced by them. Such a local reaction may even act in a manner similar to that of a focus of infection from which sensitizing doses of the weaker bacteria repeatedly escape. Not only did a diminution or disappearance of the delayed type of skin sensitivity accompany relief of symptoms but also these two synchronous phenomena proceeded in direct proportion to each other. The foregoing suggests that the symptoms which were relieved may have been allergic manifestations set up by the particular organisms recovered from the patient and used in treatment. So far as specific desensitization to the particular organisms used in treatment is concerned, no greater changes were produced by treatment in unimproved patients than those which would have occurred without treatment. Persistence of an undrained focus of infection seems to be the usual cause of failure of autogenous vaccine therapy to be followed by improvement of symptoms and by regressive changes in skin sensitivity.

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Effects of Hyperpyrexia on Blood Chemistry.—Simon observed the effects of artificial fever on the blood count, urine and blood chemistry. This study is based on seventy-one treatments given ten patients. He noticed that during treatment the blood is first diluted but later becomes concentrated. The urine shows an increasing alkalinity and occasionally clearing of albuminuria. The blood sugar level shows a marked rise, with no glycosuria when the level reaches to the accepted renal threshold or beyond. Creatinine and nonprotein nitrogen show more of an increase than can be considered due to concentration. Blood chlorides decrease approximately 2 per cent. The white blood count is increased by fever treatments. This is first noticed in the granulocytes and is due partly to production of immature forms and partly to mobilization of older types. Any experimental work of this nature should be under standard conditions and should cover a sufficiently large number of cases to allow for individual variation.

Journal of Nervous and Mental Disease, New York

83: 125-248 (Feb.) 1936

Questionnaires and Study of Personality. C. Landis, New York.—p. 125.
Some Problems in Obstetrics Discussed from Neuropsychiatric Standpoint. A. J. Rosanoff, Los Angeles.—p. 135.
Reactive Psychosis in Response to Mental Disease in Family. Lauretta Bender, New York.—p. 143.
*Simmonds' Disease: Report of Case with Recovery. C. W. Dunn, Abington, Pa.—p. 166.
Therapeutic Quartan Malaria in Treatment of Neurosyphilis Among Negroes. G. C. Branche, Tuskegee, Ala.—p. 177.

Simmonds' Disease.—Dunn cites a case of Simmonds' disease (multiple ductless glandular sclerosis, Falta) in a girl, aged 13 years, with a presumptive early and successful result of

treatment. The treatment consisted in the daily hypodermic administration of large doses (2 cc.) of the anterior pituitary liquid (Armour) and equally larger weekly doses (10,000 rat units) of estrogenic substance (progynon-B, Schering). The period of time that treatment will have to be maintained is not known. However, it has been and will be consistently reduced as normality is maintained. Concerning the subject of Simmonds' disease, it is believed that Falta's classification as and the definition of "multiple ductless glandular sclerosis" more typically expresses the pathologic and clinical picture of the syndrome now known as Simmonds' disease (hypophyseal cachexia). Further, it stresses the pluriglandular therapy required to offset the pathologic atrophy ensuing in the various endocrine glands and the structures they coptrol. The success of the treatment in this particular case would seem to verify, at least in part, this conclusion.

Journal of Nutrition, Philadelphia

11: 1-102 (Jan. 10) 1936

Refection in the Rat, with an Appendix on Methods of Preparing Basic Materials for Deficient Diets. S. Bliss, with technical assistance of F. Green, New Orleans.—p. 1.
Comparative Antirachitic Efficiency of Vitamin D in Irradiated Milk, Metabolized (Yeast) Milk and Cod Liver Oil. R. M. Bethke, W. E. Krauss, P. R. Record and O. H. M. Wilder, Wooster, Ohio.—p. 21.
*Effect of Digestibility on Availability of Iron in Whole Wheat. Ella McCollum Vahlteich, Mary Swartz Rose and Grace MacLeod, New York.—p. 31.
Protein Utilization as Affected by Presence of Small Amounts of Bran or Its Fiber. Esther H. Funnell, Ella McCollum Vahlteich, Sadie O. Morris, Grace MacLeod and Mary Swartz Rose, New York.—p. 37.
Influence of Ration on Vitamin C Content of Milk. W. H. Riddell, C. H. Whitnah, J. S. Hughes and H. F. Lienhardt, Manhattan, Kan.—p. 47.
Variation in Mineral Content of Vegetables. J. Davidson and J. A. LeClerc, Washington, D. C.—p. 55.
Studies on Vitamin G (B_2) and Its Relation to Canine Black Tongue. C. J. Koehn Jr. and C. A. Elvehjem, Madison, Wis.—p. 67.
*Effects of Excessive Ingestion of Sodium and Potassium Salts on Carbohydrate Metabolism and Blood Pressure in Diabetic Children. I. McQuarrie, W. H. Thompson and J. A. Anderson, Minneapolis.—p. 77.

Availability of Iron in Whole Wheat.—Vahlteich and her associates fed young rats depleted to hemoglobin levels averaging 3.3 Gm. per hundred cubic centimeters of blood at 8 weeks of age as supplements to fresh whole milk (1) whole wheat (3 Gm.), yielding 0.1 mg. of iron and 0.02 mg. of copper; (2) whole wheat (2.7 Gm.) with all the starch dextrinized, furnishing the same amounts of iron and copper as 1; (3) 0.1 mg. of iron as ferric chloride and 0.02 mg. of copper as copper sulfate. Hemoglobin regeneration was best on the predigested wheat, next best on the natural wheat finely ground and poorest on the mineral supplements, the gains in six weeks amounting respectively to 9.6, 7.6 and 7 Gm. of hemoglobin per hundred cubic centimeters of blood. The authors believe that the ease of digestion of the dextrinized wheat has been the factor causing the better hemoglobin regeneration on this than on the wheat finely ground but not predigested.

Effects of Sodium and Potassium Salts on Carbohydrate Metabolism and Blood Pressure.—McQuarrie and his collaborators found that, when ingested in amounts varying between 1 and 2 Gm. per kilogram of body weight daily, sodium chloride exerts a favorable influence on the carbohydrate metabolism of diabetic children taking simplified diets low in potassium. This effect is usually observed on the second or third day. At the same time both the systolic and diastolic blood pressure levels are elevated significantly. Sodium appears to be chiefly responsible for these effects since other salts of this element as well as the chloride exert similar, though less marked, effects. Potassium chloride has diametrically opposite effects on both glycosuria and blood pressure. In terms of chemical equivalents, potassium completely antagonizes the effects of sodium when given simultaneously in amounts as little as one-third that of sodium. The studies were carried out on one normal and four diabetic subjects from 13 to 15 years of age. The physiologic mechanisms involved in these reactions are at present obscure but are being further investigated.

Michigan State M. Society Journal, Grand Rapids

35: 1-74 (Jan.) 1936

Comments on the Medical Management of Disease of Gallbladder. J. H. Musser, New Orleans.—p. 1.
Some Surgical Aspects of Disease of Gallbladder. F. A. Coller and F. Boys, Ann Arbor.—p. 10.
Achievements in Cancer Control. E. I. Carr, Lansing.—p. 17.
Intracranial Aneurysms. F. P. Currier and D. B. Davis, Grand Rapids.—p. 25.
The Birth Control Movement: Its History, Background and Development. G. Kamperman, Detroit.—p. 28.
Cancer Survey of Michigan. F. L. Rector, Evanston, Ill.—p. 37.

Minnesota Medicine, St. Paul

19: 1-72 (Jan.) 1936

Biologic Effects of Active Thymus and Pineal Extracts: Brief Review. A. M. Hanson, Faribault.—p. 1.
Rôle of Iron in Treatment of Anemia. W. A. Bloedorn, Washington, D. C.—p. 5.
Rôle of Drug Allergy in Etiology of Primary Granulocytopenia. T. L. Squier and F. W. Madison, Milwaukee.—p. 10.
Laboratory Diagnosis of Various Forms of Dysentery. T. B. Magath, Rochester.—p. 17.
Roentgenologic Manifestations of Diseases Which Have Dysentery as a Prominent Symptom. H. M. Weber, Rochester.—p. 23.
Dysentery: Its Medical Management. J. A. Bargen, Rochester.—p. 29.
Surgical Treatment of Dysenteries. C. F. Dixon, Rochester.—p. 33.
Reminiscences of a Range Physician. C. W. More, Eveleth.—p. 36.
Latent Syphilis. P. A. O'Leary, Rochester.—p. 42.
The Low Back Problem. M. O. Henry, Minneapolis.—p. 46.

19: 73-130 (Feb.) 1936

Progress in Treatment of Some Diseases of Blood. W. P. Murphy, Boston.—p. 73.
Endocrine Therapy. E. L. Sevringhaus, Madison, Wis.—p. 78.
Deep Abscess of Neck. J. F. Barnhill, Indianapolis.—p. 83.
Importance of Radiation Therapy Institutions in Control of Cancer. H. Schmitz, Chicago.—p. 88.
*Development and Treatment of Cancer of Stomach. W. Walters, Rochester.—p. 91.
Sterility: Consideration of Its Etiology and Treatment. J. J. Swendson, St. Paul.—p. 96.
Stillbirths. G. A. Dahl, Mankato.—p. 100.
Renal and Ureteral Lithiasis. J. T. Priestley, Rochester.—p. 102.
Trends in Medicine. S. A. Slater, Worthington.—p. 106.
Symptomatology of Epigastric Hernia: Analysis of Two Hundred and Ninety-Six Cases. J. de J. Pemberton, Rochester, and F. S. Curry, Detroit.—p. 109.

Treatment of Cancer of Stomach.—Walters says that the proper treatment for carcinoma of the stomach is surgical removal whenever possible. Every patient who has cancer of the stomach, regardless of how extensive, should be allowed the benefit of surgical exploration of the lesion provided distant metastasis is not demonstrable. In from 10 to 15 per cent of those cases in which the lesion, on roentgen examination, appears to be inoperable because of its extent, surgical removal of the lesion can be accomplished. Large malignant lesions of the stomach will often be found to be of a low degree of malignancy, to be sharply demarcated and to present no involvement of lymph nodes. Removal of such lesions by partial gastrectomy gives a high incidence of permanent cure and this is particularly true in elderly patients. At the Mayo Clinic the finding of an extensive carcinoma, localized in the stomach, or even of one associated with involvement of lymph nodes, is viewed from the standpoint that, unless the lesion is removed, the patient is doomed to early death. In several cases total gastrectomy has been performed successfully at the clinic, and patients have lived and been comfortable two and three years subsequently. That such an operative procedure can be carried out in suitable cases with great benefit to the patient has led to the impression that all gastric lesions should be removed unless they have invaded adjacent structures to the extent that the carcinomatous process cannot be removed in its entirety. It is not an uncommon experience to find that a growth which is examined while the patient is straining under light anesthesia appears to be unremovable but under deep anesthesia may be seen to be readily removable. It is not the age of the patient but his general condition that is a factor in the surgical mortality. The author has found it of value to approach all extensive lesions of the stomach through a left rectus incision, as suggested by Balfour. In general, a posterior Polya or an anterior Polya-Balfour type of anastomosis is the most satisfactory type of reconstruction following extensive gastric resection for malignant disease. However, in certain instances the original method of Billroth, in which the stomach and duodenum are anastomosed, has

worked out to advantage, although the greatest field of its applicability is in the presence of benign gastric ulcers, bleeding duodenal ulcers and recurring ulcers. When extensive gastric resections have been performed on elderly patients, particularly in the case of subtotal or total gastrectomy, jejunostomy as a means of providing a temporary method of feeding has a decided advantage. During this time oral administration of fluids is restricted to assist in healing of the anastomosis. This is of particular value for patients who have lost a considerable amount of weight and who have been debilitated as a result of carcinomatous obstruction. The presence of abnormal gastric lesions from 1 to 1.5 cm. in diameter can be detected by a competent roentgenologist. Many small lesions of the stomach, which appear to be benign on roentgen examination and even at the time of operation, have proved microscopically to be malignant.

Nebraska State Medical Journal, Lincoln

21: 41-80 (Feb.) 1936

Recognition and Management of Intrathoracic Goiters. N. F. Hicken, Omaha.—p. 41.
Heredity as Factor in Disease. F. Conlin, Omaha.—p. 48.
Progress of Surgery: Review of Literature for the Last Half of 1935. H. H. Davis, Omaha.—p. 53.
Rupture of Visceral Hemangioma as Cause of Death: Report of Case of Pulmonary Hemangioma. W. F. Bowers, Minneapolis.—p. 55.
Lymphangioma of Rectum. M. Emmert, Omaha.—p. 57.
Diagnosis and Treatment of Anemia: II. Hematocrit. J. C. Sharpe, Omaha.—p. 58.
Paradoxical Embolus. J. M. Neely, Lincoln.—p. 61.
Functional Bowel Distress. S. S. Pinto, Omaha.—p. 63.

New England Journal of Medicine, Boston

214: 1-44 (Jan. 2) 1936

Form of Sclerosing Osteomyelitis Following Fractures of Long Bones. P. P. Swett, Hartford, Conn.—p. 1.
Diabetes Epidemiology from Death Records. E. P. Joslin and H. L. Lombard, Boston.—p. 7.
The George W. Gay Lecture on "Medical Ethics": The Successful Doctor and the Human Side of Practice. J. B. Herrick, Chicago. —p. 9.
Death Rate from Alcoholism. T. Leary, Boston.—p. 15.
Further Experience with Fractional 'Phthalein Test. E. M. Chapman, Boston.—p. 16.
The Teaching of Gynecology at the New England Medical Center. L. E. Phaneuf, Boston.—p. 19.
Elimination of Postoperative Pain Following Hemorrhoidectomy. N. J. Simmons, Boston.—p. 20.

214: 93-136 (Jan. 16) 1936

*Primary Carcinoma of Lung: Early Diagnosis and Treatment by Pneumonectomy. R. H. Overholt, Boston.—p. 93.
DeQuervain's Disease: Stenosing Tendovaginitis at the Radial Styloid. D. C. Patterson, Bridgeport, Conn.—p. 101.
Antepartum Care. M. F. Eades, Boston.—p. 103.
Treatment of Postherpetic Neuralgias. C. M. Byrnes, Baltimore. —p. 108.
The Hinton Test: III. Its Clinical Value. A. W. Cheever, Boston. —p. 112.
Treatment of Arthritis with Gold Salts. R. T. Phillips, Boston.—p. 114.
Medical, Legal and Ethical Connection by Physicians with Cases of Malpractice Which Have No Criminal Factors. F. W. Anthony, Haverhill, Mass.—p. 115.

Primary Carcinoma of Lung.—Overholt points out that excision of the entire lung on one side is technically possible, that the consequence of such a procedure is not incapacitating and also that a diagnosis of primary malignant condition of the lung can be made before the patient reaches the necropsy table. An analysis of the cases in his series and the experiences of others show that the large majority of all primary carcinomas of the lung originate in a major division of the right or left main bronchus. Therefore, the majority of these lesions can be actually seen early in their development and a biopsy obtained by means of the bronchoscope. Cough and hemoptysis occurred in a large proportion of all cases early in the course of the disease. This warning sign should be heeded and, if no adequate explanation is forthcoming after sputum and roentgen examinations, the patient should be subjected to bronchoscopy. In the early stages of stem bronchus lesions, the lesion itself does not cast a shadow on the roentgenogram. The roentgen diagnosis depends on secondary evidences of growth; namely, atelectasis. In all cases of a proved malignant manifestation, exploratory thoracotomy is indicated if metastasis cannot be demonstrated. In peripheral lesions, exploration is justified without a positive biopsy diagnosis. The thoracic exploration may be the only possible way to settle the diagnosis at a time when the growth is in the operable stage. Any form of irradiation is ineffective. Five successful pneumonectomies are reported—three for malignant and two for suppurative disease.

214: 137-182 (Jan. 23) 1936

Acute Arterial Obstruction from Arteritis. H. M. Clute, Boston.—p. 137.
*Hyperglycemia and Paresis: Report of Two Cases. L. M. Blackford and J. H. Venable, Atlanta, Ga.—p. 140.
The American Neisserian Medical Society: Presidential Address. J. D. Barney, Boston.—p. 142.
Costovertebral Strain. L. T. Brown, Boston.—p. 144.
Two Cases of Dwarfism. H. L. Higgins, Boston.—p. 148.
Therapeutic Value of Calcium Salts in Serum Sickness. T. J. Curphey, Brooklyn, and S. Solomon, New York.—p. 150.

Hyperglycemia and Dementia Paralytica.—Blackford and Venable cite two cases of hyperglycemia and dementia paralytica. They explain convulsions in relation to diabetes on the basis of an overdose of insulin. Neither patient had ever had insulin at the time of her first convulsion. Convulsions are not infrequent in dementia paralytica, and the headaches, disorientation and at times marked euphoria are, especially in view of the spinal fluid reports, pathognomonic of dementia paralytica. The authors know, therefore, in spite of the absence of necropsies, that in both cases there was extensive destruction of the brain substance: it is not unreasonable to assume that the vital basal structures were damaged. The evidence against the presence of diabetes mellitus independent of the syphilis in the first case is not conclusive. In the second case dementia paralytica seems an adequate explanation of the whole picture. The patient exhibited glycosuria only when in a convulsive state, and, in spite of excessive indulgence in sweets, she gained weight steadily until the time of her death. Her sugar tolerance curve, though high, is in keeping with that reported from time to time in cases of cerebral lesions.

Philippine Islands Med. Association Journal, Manila

15: 637-702 (Dec.) 1935

Medical Service in the Philippines. A. S. Fernando, Manila.—p. 637.
Therapeutic Value of Duodenal Intubation (Nonsurgical Biliary Drainage) in Gallbladder Diseases. A. Liboro, Santo Tomas.—p. 656.
Staphylococcus Bacteriophage: II. Sensitiveness of Staphylococci from Different Sources to Bacteriophagy. A. Pio de Roda, Manila.—p. 670.

Southern Medical Journal, Birmingham, Ala.

29: 1-118 (Jan.) 1936

Pulmonary Changes in Undulant Fever. F. B. Bogart, Chattanooga, Tenn.—p. 1.
Management of Pansinusitis. W. A. Wagner, New Orleans.—p. 9.
Diagnosis of Heart Wounds. I. A. Bigger, Richmond, Va.—p. 18.
Dysfunctional Uterine Bleeding. Catharine Macfarlane, Philadelphia.—p. 23.
Changing Gynecology and Consideration of Gynecologic Errors. E. Dunlap, Dallas, Texas.—p. 27.
Seasonal Occurrence of Various Obstetric Complications and Abnormalities. R. Paddock, St. Louis.—p. 31.
Clinical Study of Vitamin C Excretion. M. Corlette, J. B. Youmans, J. Akerroyd and Helen Frank, Nashville, Tenn.—p. 37.
Conservative Use of Anesthetics: Agents and Methods. J. S. Lundy, Rochester, Minn.—p. 42.
Well-Leg Traction as an Aid in Correction of Some Stereotyped Orthopedic Deformities. J. W. White, Greenville, S. C.—p. 45.
Some Physiologic Aspects of Treatment of Peritonitis. T. G. Orr, Kansas City, Kan.—p. 49.
Postoperative Treatment. A. Ochsner, New Orleans.—p. 53.
Chronic Lung Disease. J. A. Miller, New York.—p. 57
Cancer of Kidney: Report of Cases. B. W. Turner, Houston, Texas. —p. 63.
Cancer of Genito-Urinary Tract. C. E. Burford, St. Louis.—p. 65.
*Evaluation of Serodiagnostic Test for Syphilis. F. E. Senear, Chicago; H. S. Cumming, H. H. Hazen, Washington, D. C.; A. H. Sanford, Rochester, Minn.; W. M. Simpson, Dayton, Ohio, and R. A. Vonderlehr, Washington, D. C.—p. 68.
Treatment of Neurosyphilis. W. F. Lorenz, Madison, Wis.—p. 74.
Congenital Malformation: Study of More Than Five Hundred Families Each Having at Least One Congenitally Malformed Child. D. P. Murphy, Philadelphia.—p. 79.
The Emotional Factor in Disease. J. S. McLester, Birmingham, Ala.—p. 81.
A New Era in Public Health. W. K. Sharp Jr., New Orleans.—p. 83.
Spontaneous Recovery from Pneumococcus Meningitis: Report of Case in a New-Born Infant. S. F. Ravenel, Greensboro, N. C.—p. 86.

Evaluation of Serodiagnostic Test for Syphilis.—Senear and his associates declare that the plan in their study differed from that of the conference of the League of Nations in that the serums were sent to each of the thirteen participants who

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were able to test them in their own laboratory, in most instances probably along with their routine serologic work. In other respects the procedure followed in the main that of the League of Nations conferences. Four participants performed complement fixation tests and nine performed flocculation tests. A total of 1,017 blood specimens and 220 spinal fluid specimens was furnished to each participant. The specimens were collected in various parts of the country and, depending on the distance that they were to travel, were sent by ordinary special delivery or by special delivery air mail. The average in sensitivity of the nine flocculation tests was 80.3 per cent, and that of the complement fixation methods 75.1 per cent. The previously published conclusions of the committee are reviewed in part in order to emphasize again their conception of the present situation in the serodiagnosis of syphilis.

Southwestern Medicine, Phoenix, Ariz.

20:1-38 (Jan.) 1936

Hay Fever and Other Allergic Conditions. R. W. Lamson, Los Angeles. —p. 1.
Acute Yellow Atrophy of Liver: Case Report: Autopsy. W. L. Brown, C. P. Brown and J. L. Murphy, El Paso, Texas.—p. 4.
Acute Suppurative Appendicitis: Report of Two Hundred and Six Consecutive Cases. J. D. Lamon Jr., Albuquerque, N. M.—p. 5.
Premalignant and Malignant Skin Lesions, with Especial Reference to Their Treatment by Endothermic Methods. L. M. Smith, El Paso, Texas.—p. 7.
Alcoholic Pellagra: Case Report. M. Spearman and L. M. Smith, El Paso, Texas.—p. 9.
Control of Food Allergens Is Extremely Difficult. O. H. Brown, Phoenix, Ariz.—p. 10.
Treatment Methods of Breast Carcinoma. D. von Briesen, El Paso, Texas.—p. 12.
The Larger Aspects of the Problems of Heart Disease. C. T. Stone, Galveston, Texas.—p. 13.
Studies on Nature of Phagocytosis. Z. M. Flinn, Prescott, Ariz.—p. 15.

Surgery, Gynecology and Obstetrics, Chicago

63:129-256 (Feb. 1) 1936

*Relation of Chronic Mastitis to Certain Hormones of Ovary and Pituitary and to Coincident Gynecologic Lesions: Part I. Theoretical Considerations and Histologic Studies. H. C. Taylor Jr., New York. —p. 129.
*Influence of Pepsin and Hydrochloric Acid on Healing of Gastric Defects: Artificial Gastric Ulcer. E. L. Howes, C. A. Flood and C. R. Mullins, New York.—p. 149.
A Review, Clinical and Pathologic, of Parahypophyseal Lesions. C. H. Frazier, Philadelphia.—p. 158.
Regeneration of Semilunar Cartilage. D. King, San Francisco.—p. 167.
*Amniotic Fluid Concentrate as an Activator of Peritoneal Immunity. H. L. Johnson, G. K. Coonse, J. B. Hazard, P. S. Foisee and O. Aufranc, Boston.—p. 171.
Repair of Postoperative Defects Involving Lips and Cheeks Secondary to Removal of Malignant Tumors. G. B. New and F. A. Figi, Rochester, Minn.—p. 182.
Conditions Necessitating Surgery Following Cholecystectomy: Analysis of Sixty-Six Cases and Discussion of Certain Technical Problems Concerned in Removal of Gallbladder and in Operations on Common Bile Duct. H. L. Beye, Iowa City.—p. 191.
Surgical Indications for Peptic Ulcer and Its Surgical Management. M. E. Blahd, Cleveland.—p. 203.
Preoperative Iodine Therapy in Hyperthyroidism. E. E. Blanck, Chicago. —p. 213.
Duodenal Ulcer, Surgical Treatment. F. G. Connell, Oshkosh, Wis.—p. 216.
Orthopedic Considerations in Treatment of Spina Bifida. R. S. Smith, St. Louis.—p. 218.
Extra-Uterine Pregnancy: Analysis of Three Hundred and Thirteen Cases from Harlem Hospital. H. C. Falk and M. A. Rosenbloom, New York.—p. 228.
Improved Anesthetic Technic for General Surgery. W. A. Fraser and J. T. Gwathmey, New York.—p. 236.
Experiences with Latzko Cesarean Section. A. J. Fleischer and J. I. Kushner, Bronx, N. Y.—p. 238.

Chronic Mastitis and Coincident Gynecologic Lesions.—According to Taylor, the difference of opinion expressed by various observers and the easily found exceptions to the Rosenburg conception indicate that the cycle of a general premenstrual epithelial proliferation and postmenstrual regression has probably been exaggerated. A premenstrual hyperemia of the breast is, however, obvious from the gross changes in the size and the weight of the breast and the deepening of the color of the areola. Microscopic evidence of this vascular change is found in the greater definition of the lobule and in the alteration of the character of the intralobular connective tissue. The painful breast in its simplest form exhibits an increase in these premenstrual vascular changes. To refer the abnormal premenstrual swelling of the breast to excessive epithelial proliferation or the pain to the distention of the ducts with desquamated cells is contrary to many histologic observations. The tissue in the milder forms of the painful breast may therefore appear almost normal under the microscope or may show excessive "edema" of the intralobular connective tissue. In the cases presenting pain and marked nodularity there may be evidence also of irregular fibrous tissue and epithelial proliferation. The histology of the painful hypertrophies of this series was in general similar to that of the painful, nodular breast. The histology of the breast with discharge from the nipple is variable and includes duct dilatation, stasis and catarrhal inflammation, frequently with secretion and hyperplasia of the epithelium and fibrosis and round cell infiltration of the connective tissue.

Healing of Gastric Defects.—Howes and his co-workers administered excessive amounts of pepsin and hydrochloric acid to cats with mucosal defects in the stomach and observed the rate and character of healing. The results are compared with the healing of similar defects in a group of animals receiving equal amounts of hydrochloric acid without pepsin and with controls receiving neither acid nor pepsin. The concentration of hydrochloric acid given to the majority of the cats ranged between hydrogen ion concentration 1 and 1.4. The failure of these experiments to produce chronic ulcers does not invalidate the clinical concept of the causal relationship between gastric juice and the chronicity of ulcer, for the defense mechanisms against the action of potent gastric juice were relatively undisturbed. The gastric juice of the patient with chronic peptic ulcer has no more capacity to cause an acute mucosal ulceration to become chronic than does artificial gastric juice. In general, the stomach, even when injured, has the ability to cope with destructive digestive juices remaining in the lumen for long periods of time, provided the defense mechanisms are not too disturbed.

Amniotic Fluid Concentrate and Peritoneal Immunity.—From the experimental and clinical evidence on which Johnson and his associates base their paper, they state that they have definitely proved that amniotic fluid concentrate most effectively meets the requirements to establish peritoneal immunity against infection and adhesions. The only other substance now being employed to any extent as an activator of peritoneal immunity is the bacterial vaccine of Rankin and Bargen with modifications by Steinberg and Goldblatt. Extensive clinical trial and laboratory experiments have proved this agent effective. However, its use is confined to preoperative administration, from forty-eight to seventy-two hours before the abdomen is opened, and the protection afforded by its introduction is attained at the cost of a considerable physiologic and clinical upset and a long immunizing interval. In the authors' experimental work, at least, the product itself has not proved stable. Other substances, such as physiologic solution of sodium chloride, papain and sodium ricinoleate, were studied as controls and for the purpose of learning their beneficial or destructive qualities in the infected and uninfected animals. The brief immunization interval required in the use of amniotic fluid concentrate makes it adaptable for operative as well as preoperative introduction.

United States Naval Med. Bulletin, Washington, D. C.

34:1-148 (Jan.) 1936

Identity of Lymphogranuloma Inguinale and Climatic Bubo. L. E. Gilje.—p. 1.
Frei Test in Lymphogranuloma Inguinale and Other Types of Inguinal Adenitis. C. B. Galloway.—p. 12.
Epidemic of Bacillary Dysentery. A. A. Shadday.—p. 16.
A Thousand Applicants. H. D. Templeton.—p. 22.
Neuropsychiatric Service, U. S. S. Relief: Analysis of One Year's Work. F. L. McDaniel.—p. 27.
Prophylaxis of Venereal Disease. J. A. Millspaugh.—p. 32.
Influence of Increased Barometric Pressure on Pulse Rate and Arterial Blood Pressure. C. W. Shilling, J. A. Hawkins and R. A. Hansen, with technical assistance of I. A. Everley.—p. 39.
Hazard of Caisson Disease in Individual Submarine Escape. C. W. Shilling and J. A. Hawkins.—p. 47.
Review of Relation Between Sinusitis and Pulmonary Disease. F. Harbert.—p. 52.
The Civilian Doctor's Part in a National Military Emergency. H. A. Monat.—p. 64.
Allergy, Autointoxication and Indicanuria. J. R. Sayers.—p. 67.
Camphorated Oil in Treatment of Minor Industrial Wounds. D. N. McInturff Jr.—p. 70.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Mental Science, London

81: 755-1030 (Oct.) 1935

Four Decades of Psychiatry. R. Worth.—p. 755.
Clinical Significance of Social Maturity. E. A. Doll.—p. 766.
Modern Endocrinology and Mental Disorder. T. D. Power.—p. 783.
Some Clinical Aspects of General Paralysis. W. D. Nicol and E. L. Hutton.—p. 804.
Unfitness to Plead. W. D. Higson.—p. 822.
Chorea, Tics and Compulsive Utterances. Mildred Creak and E. Guttmann.—p. 834.
Some Recent Investigations into the Hematology of the Psychoses. H. C. Beccle.—p. 840.
Value of Rorschach Test. A. Guirdham.—p. 848.
The Rorschach Test in Epileptics. A. Guirdham.—p. 870.

Lancet, London

2: 1393-1448 (Dec. 21) 1935

Care and Treatment of Difficult Children. R. Miller.—p. 1393.
Macrocytic Hemolytic Anemia: Report of Case. J. L. Lovibond.—p. 1395.
Diagnosis of Vitamin C Subnutrition by Urine Analysis: Quantitative Data—Experiments on Control Subjects. M. A. Abbasy, L. J. Harris, S. N. Ray and J. R. Marrack.—p. 1399.
*Adult Scurvy: Case. P. Wood.—p. 1405.
Significance of Lateral Aberrant Thyroids. A. L. d'Abreu.—p. 1406.

Scurvy.—Wood reports a case illustrating that scurvy still occurs in adults. In this instance a dyspeptic diet was the cause of the vitamin deficiency. The case bears out the contentions of Harris and Ray that the cevitamic acid urinary excretion test is a valuable aid in the diagnosis of scurvy. The patient received more than 1,000 mg. of cevitamic acid and excreted only 1.7 mg., and that was after the test dose of 600 mg. A normal control, after a test dose of 600 mg., excreted 231 mg. There can be little doubt that both children and adults store vitamin C in the tissues, for Harris and Ray have shown that the excretion of cevitamic acid continues at an even rate for many days after complete elimination of the vitamin from the diet, and there is no evidence that human beings can synthesize it. That 1,000 mg. of cevitamic acid was almost completely retained in the body of this patient suggests that her stores were very low. The anemia of scurvy is of interest. In this patient the anemia was moderate and appeared to be orthochromic and normocytic. It was not possible to estimate the reticulocyte response owing to the patient's objections. The bleeding time was prolonged and the blood platelets were normal.

Medical Journal of Australia, Sydney

2: 769-800 (Dec. 7) 1935

Obesity: Etiology and Metabolism. C. G. Lambie.—p. 769.
Some Anatomic Considerations of Autonomic Nervous System. A. N. Burkitt.—p. 781.
Some Physiologic Considerations of Autonomic Nervous System. G. Phillips.—p. 782.
Volumetric Microdetermination of Spermine in Semen. A. Bolliger.—p. 784.

2: 801-832 (Dec. 14) 1935

E. H. Embley Memorial Lecture. Z. Mennell.—p. 801.
*Management of Head Injuries. R. A. Money.—p. 810.

Management of Head Injuries.—Money considers the following pathologic conditions as being covered by the term "head injury": (1) wounds and contusions of the scalp; (2) fractures of the skull and their complications; (3) meningeal and vascular injuries, leading to the various types of intracranial hemorrhage—epidural, subdural, subarachnoid and intracerebral; (4) contusions and lacerations of the brain, with edema and/or hemorrhage, leading to the clinical states of traumatic stupor and traumatic delirium (that is, concussion, irritation and compression of the brain), and (5) after-effects of any of the foregoing, including mental deterioration, traumatic neurasthenia and fits. A consideration of any large series of head injuries on the basis of traumatic stupor will enable them to be placed in three categories, according to their condition on admission to the hospital. The first group consists of patients who are deeply unconscious or comatose. These comprise chiefly cases of injury to the base of the skull with rapid and extensive subarachnoid hemorrhages and hemorrhages from the dural sinuses. The patient's condition becomes progressively worse, whatever is done, and death occurs within the first twenty-four hours and usually within the first eight hours. In the second group patients are of two main types. 1. Patients who have regained or are already regaining consciousness but are dazed and restless, with immediate retrograde amnesia. Provided a progressive return of the faculties proceeds, the prognosis is good, whatever the injury. 2. Patients who were primarily unconscious but have recovered and relapsed into a secondary unconsciousness or stupor. Unless careful observations have been made on admission or shortly afterward, it may be difficult to estimate the length of the lucid interval, the depth of this secondary stupor (the crucial point) and the existence of localizing signs. The classic cases of extradural and massive subdural hemorrhage fall into this group, and for them active operative intervention (subtemporal craniectomy, often bilateral) is essential. If the stupor is relatively light and no paralysis is observed, only edema may be present, and recovery will occur spontaneously or by the aid of dehydration methods without major operation. The third group consists of patients who are stuporous or lightly unconscious on admission and who remain uncooperative and unresponsive for hours, days or weeks. Despite this lack of cooperation, many useful observations and examinations can be made. The condition of the patients, thus revealed, is a gradual and progressive one toward recovery; anxiety will be relieved, and there is no need for major surgical intervention. These are usually cases of severer contusions and lacerations. The early adoption of the upright posture in a special bed is advocated, and the use of bromides and the barbiturates for restlessness in preference to morphine is urged. A routine is set out for the prevention and control of hyperthermia. The indications for lumbar puncture, both diagnostic and therapeutic, and the administration of hypertonic solutions are stated. The routine use of a simple spinal glass manometer to determine accurately the intracranial tension before deciding on active therapeutic measures is advised. The indications for and technic of operations for scalp wounds and fractures are considered in detail. The repair of defects in the cranial vault by bone grafts from the ilium is advocated. Failure of compensation and the onset of compression call for operation. Subtemporal decompression is usually sufficient to enable evacuation of the clot. Early evacuation of localized intracerebral hemorrhage to prevent the onset of fits is advocated.

Chinese Medical Journal, Peiping

49: 1183-1280 (Nov.) 1935

Present Status of Knowledge of Mosquitoes of China and Their Relation to Human Diseases. L. C. Feng.—p. 1183.
Use of Higher Barbiturates in General Practice: Report on Sixty-Six Cases. H. F. Burkwall.—p. 1209.
*Systemic Salmonella Infections in Man: Clinical and Bacteriologic Study. C. J. Wu and S. H. Zia.—p. 1217.

Systemic Salmonella Infections.—Wu and Zia state that in the last fourteen years 691 cases of typhoid-paratyphoid group fevers have been admitted to the Peiping Union Medical College Hospital, their relative incidence being typhoid 84.1 per cent, paratyphoid A 9.4 per cent, paratyphoid B 3.2 per cent and paratyphoid C 3.3 per cent. The clinical symptoms of the systemic Salmonella infections are indeed variable and almost identical, no matter which organism is the underlying cause. Many even simulate moderately severe cases of Bacillus typhosus infection. Eleven of the eighteen cases of Bacillus paratyphosus Corynebacterium suipestifer infections occurred in the last two years. The comparative scarcity of the natural Bacillus paratyphosus B infection in Peiping leads the authors to wonder whether it is wise to continue to include this organism in the preparation of vaccine for prophylaxis against enteric infections. The United States Army vaccine now does not contain Bacillus paratyphosus B, because it has been found to be no longer necessary. If studies in other parts of the country confirm this relative low incidence, it may be time to leave out Bacillus paratyphosus B in the preparation of vaccine, which would incidentally reduce much of the severe reaction now resulting from its use.

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Presse Médicale, Paris

43: 2049-2064 (Dec. 18) 1935

*Malaria and Henry Reaction. E. Marchoux and V. Chorine.—p. 2049.
Besides Sensitization Parakeratosis Dermatosis Is There not Psoriasis Caused by Ultravirus? A. Desaux and H. Prétet.—p. 2050.
Skin Grafting. M. Grinda.—p. 2053.
Morbid Determinism of Dolichocolon. J. Tauzin.—p. 2055.

Malaria and Henry Reaction.—There are, according to Marchoux and Chorine, only two ways of diagnosing malaria. The parasite must be discovered in the blood or its pigment must be found. For the determination of the latter the Henry reaction is especially interesting, though it does not have the specificity originally credited to it. It rests solely, according to most investigators, on a change in the serum. The change consists especially in an increase in the coefficient of euglobulins precipitatable by distilled water. This serum disequilibrium is constant in malaria but is not confined to it. A positive result gives an erroneous diagnosis of malaria in from 5 to 7 per cent, but a negative reaction is false in less than 1 per cent. The reaction is, however, inhibited at the time when the microscope shows the parasites in the blood. Certain technical factors are important. Thus blood for the test should not be taken at the time the parasites appear in the blood and it should be taken from the fasting person. It is important to test the blood soon after removal, as the time factor is important. Finally, the distilled water method gives the most certain results. Of 335 patients examined, the reaction was negative in 253, positive in sixty-two and doubtful in twenty. In patients who had acquired malaria in the colonies the reaction was positive in from 35 to 40 per cent during the first six months of their return and fell almost to zero after two years. The authors feel that this reaction may confirm other evidence that malaria apparently cured is so in actual fact.

Minerva Medica, Turin

1: 81-104 (Jan. 28) 1936

*Artificial Pneumomediastinum: Anatomic Investigations and Technic of Injections into Anterior and Posterior Mediastinal Cavities. L. Condorelli.—p. 81.
Time of Circulation and Venous Pressure. G. Ferrari and F. Ferroni. —p. 87.
Therapeutic Action of Antithyroid Serum in Hyperthyroidism and Exophthalmic Goiter. T. Galli.—p. 91.
Sexual Functions and Tuberculosis. A. Campani.—p. 92.

Artificial Pneumomediastinum. — Condorelli uses air, injected into the mediastinum, as a contrast medium for roentgen visualization of the mediastinal structures. The punctures are made as follows: The patient is put in the dorsal position without any pillow, having his neck in extension. If the air is going to be injected in the anterior mediastinal cavity the central point of the suprasternal fossa is compressed by the surgeon with the index finger of the left hand and a needle, 10 cm. long and bent at an angle of 120 degrees 4 cm. from its point, is introduced to a depth of from 2.5 to 3.5 cm. and then inclined so that the point of the needle follows the posterior aspect of the manubrium sterni, which is the anterior boundary of the cavity. Aspiration through the needle, temporarily connected to a sterile syringe, is performed to avoid insufflation into a blood vessel. The pain caused by the puncture is slight and no accidents follow. If the air is to be injected into the posterior mediastinal cavity, the needle is introduced at the center of the middle line of the neck, at a point two finger-breadths above the fossa suprasternalis, as if for a tracheal puncture. When the point of the needle reaches the anterior wall of the trachea, the needle is inclined downward, tangentially to the trachea to a point 2 cm. below the suprasternal fossa. At this point the air insufflation can be performed. As a preliminary work for the establishment of the aforementioned technic, the author made injections of two different colored liquids into the mediastinum of cadavers and found that there is an anatomic septum separating the mediastinal anterior and posterior cavities, which is formed by the deep layers of the middle cervical fascia and the posterior aspect of the pericardium, in front and by the mediastinal pleurae at the sides. The author verified the boundaries of the mediastinal cavities and the routes through which the colored liquids disseminate themselves after the injection. His verifications clarify the significance of the roentgen shadows of the mediastinal structures in artificial pneumomediastinum and the mechanism of expansion of the air injected. The author calls attention to the importance of artificial pneumomediastinum in the roentgen examination of the mediastinum for the diagnosis of pleuromediastinal diseases.

Policlinico, Rome

43: 1-48 (Jan. 15) 1936. Surgical Section

Effect of Hypophyseal Hormone Preparations on Testicles of Guinea-Pigs. G. Lucchese.—p. 1.
*Spherical Calcium Concretions and "Corpora Amylacea" in Epididymis. A. Marsella.—p. 12.
Raynaud's Disease: Recurrence After Sympathectomy; Cases. P. Valdoni.—p. 32.

Spherical Calcium Concretions and "Corpora Amylacea" in Epididymis. — Marsella found spherical bodies, equal to those that have been described in other organs under the name of amyloid bodies, in the efferent ducts of the head of the epididymis. In his case the larger part of the bodies were calcified. The author says that, because amyloid bodies have no specific characteristics of identification and their structure varies in different organs, in the same organ and even in the same section, it is advisable to distinguish as "spherical calcium concretions" the formations in which calcium predominates and as "amyloid bodies" those that have a concentric lamellar structure and do not have histiochemical reactions to calcium. Spherical calcium concretions in the epididymis may originate in the detachment and homogenization of epididymal cells, especially epithelial cells, in amyloid bodies and in precalcified and other small accumulations of inorganic substances, independent of any cellular origin, which form the primary nuclei for the aggregation of the body. Epididymal concretions and amyloid bodies are found free in the lumen of the epididymal ducts, while those previously described in the testicle have been found to be in contact with the walls of the testicular tubuli, circumscribed by epithelial or other cells, or as migratory bodies in the interstitial connective tissues. The necessary conditions for the production of the formations are not only the detachment and degeneration of the epithelial cells and the modifications of the epididymal fluid, such as coagulation and stasis of the fluid in the tubuli, but also, and especially, the lability of the epithelial cells and the rupture of the equilibrium of the colloids and of the calcium metabolism. The coincidence of these conditions explains the formation of the concretions in the epididymis, on the one hand, and its origin in alterations independent of the detachment of epithelial cells on the other. The appearance of both spherical calcium concretions and corpora amylacea is related neither to certain diseases nor to the age of the patient in whom they appear.

Prensa Médica Argentina, Buenos Aires

23: 155-226 (Jan. 15) 1936

Surgical Treatment of Cardiospasm: Heller and Heyrovsky's Operations. J. Diez.—p. 155.
Fractures of Scapula. M. C. Rodriguez and V. F. Ardenghi.—p. 175.
*Cranio-Encephalic Topography: New Method. V. Bértola.—p. 181.
Bernheim's Syndrome: Frequency. C. F. Carrega Casaffousth and J. Suberviola.—p. 193.
Rechloridization of Patients After Operations. R. S. Ferracani.—p. 201.
Hydatid Cyst of Muscles of Nucha: Case. N. Quirno.—p. 213.

Cranio-Encephalic Topography.—Bértola describes a new method of cranio-encephalic topography to mark on the head the position of the cerebral fissures. The technic is as follows: A sagittal line is drawn from the subnasal point to the inion. The central point of this line is marked, the line being divided into an anterior and a posterior portion. The posterior portion is divided into three equal parts, which turn out to be the rolandic, sylvian and inial points. A line is then drawn from each of these three points to the retro-orbital tubercle, which is located at the center of the posterior edge of the external orbital process. The three lines result in the rolandic, sylvian and temporosinusal lines. The fissure of Rolando corresponds to the upper two thirds of the rolandic line. The sylvian fissure corresponds to the inferior two thirds of the sylvian line, beginning at the point of intersection of this line with a perpendicular line drawn from the center of the zygomatic arch. At the point of intersection of these two lines the anterior branch of the middle meningeal artery is found. The transverse (horizontal) portion of the transverse sinus corresponds to the posterior third of the temporosinusal line. The middle

branch of the middle meningeal artery is found at the point of union between the inferior third and middle third of the rolandic line. The course of the posterior branch of the middle meningeal artery corresponds to a line that bisects the angle formed by the sylvian and temporosinusal lines. The correspondence between the cerebral fissures and the cranial lines, on the one hand, and between the course of the three branches of the middle meningeal artery and the cranial points of reference, on the other, according to the method of the author, is exact. The author, in carrying out his verifications, used one half of the head for performance of his own method and the other half for either Krönlein's or Chipault's methods. His topographic marks agree with those of Krönlein's method, not with those of Chipault's. His method, however, is different from both Krönlein's and Chipault's. The author concludes by saying that his method can be applied to heads of any cephalic index. The cephalic indexes ranged between 69.23 and 88.96. His method is the first in which the course of the three branches of the middle meningeal artery is topographically marked. It is proportional, but of easy technic and application.

Beiträge zur klinischen Chirurgie, Berlin

163: 1-176 (Jan. 18) 1936. Partial Index

*Plastic Operations for Hydronephrosis. F. Schaffhauser.—p. 1.
Rôle of Meckel's Diverticulum in Ileus. E. Mester.—p. 34.
Torsion of Abdominal Testicle. L. Jósa.—p. 45.
*Changes in Duodenal Ulcer and Twin (Kissing) Ulcers. E. Ruckensteiner.—p. 51.
Qualitative and Quantitative Changes in Agglutinins of Human Blood in Disease and After Surgical Operations: Method of Estimation. W. Albertsen.—p. 78.
Reconstruction of Nose Shrunken by Tuberculous Process. E. Eichhoff.—p. 107.

Plastic Operations for Hydronephrosis.—According to Schaffhauser, the experience with the cases of hydronephrosis in which treatment was given at Clairmont's clinic (Zurich) suggests the advisability of a wider application of conservative plastic surgical intervention than has been practiced heretofore. Little difficulty is experienced in deciding on the type of operation in the cases of completely destroyed kidney represented by a mere sac. It is in cases of hydronephrosis of average size that diversity of opinions exists. There are no definite indications here, every case requiring careful consideration of a number of factors, which frequently become apparent only after free exposure of the kidney. Infected hydronephroses limit but do not exclude indications for plastic conservative surgical intervention. The rôle of mechanical factors in the pathogenesis of hydronephrosis is as a rule underestimated and the possibilities of restoring renal function after the removal of the mechanical cause not fully appreciated. The author believes that with more frequent recourse to conservative plastic operations it will be possible to save more functioning kidneys than has been the case in the past.

Alterations in Duodenal Ulceration.—On the basis of 200 roentgenologically investigated cases, 169 of which were controlled by operative intervention, Ruckensteiner concludes that twin ulcers occur in the upper portion of the duodenum with considerable regularity. Because of the tendency to heal, the association of an ulcer with a scar is not unusual. The localization of duodenal ulcers is confined to definite areas in the intestinal wall with a corresponding deformity of the duodenal bulb. Consideration of the latter suggests the possible location of the ulceration. The author believes that the large single ulcer is frequently the result of coalescence of two ulcers.

Deutsche medizinische Wochenschrift, Leipzig

62: 129-168 (Jan. 24) 1936. Partial Index

*Clinical Contributions to Problems of Pathologic Pigmentations of Skin. F. Hoff.—p. 129.
Tuberculosis of Female Genitalia. P. Caffier.—p. 134.
Treatment of Bronchial Disturbances by Inhalation of Anastil. Steinhausser.—p. 136.
*Diagnostic Value of Intracutaneous Trichophytin Reaction. W. Knierer.—p. 138.
Time Relations Between Cardiac Action and Electrocardiogram. W. Knoll, L. Gironés and W. Goerke.—p. 140.

Pathologic Pigmentations and Their Treatment.—Hoff shows that many pathologic pigmentations of the skin are connected with a deficiency of vitamin C and can be counteracted by the administration of this substance. Vitamin C deficiency may be caused by exogenic factors; namely, by deficient vitamin C content of the diet. In this connection the author mentions scurvy, in which severe pigmentations are often noted on portions of the body that are exposed to light. These pigmentations subside together with the other symptoms following the administration of sufficient quantities of vitamin C. The author points out that the physiologic pigmentation of the skin (produced by sunlight or quartz lamp) is likewise reduced by vitamin C. Vitamin deficiency may result also from a deficient resorption of vitamin C. The author thinks that pathologic pigmentations in the course of achylia gastrica (carcinoma of the stomach and pernicious anemia), in pancreatic disturbances and in chronic gastro-intestinal disturbances may perhaps be explained in this manner. Vitamin C deficiency may also be of endogenic origin, as, for instance, in case of destruction of the adrenals (Addison's disease). However, even the pathologic pigmentations that can be traced to none of these factors occasionally yield to the administration of vitamin C. The author cites a case of generalized sclerodermia with symptoms of Addison's disease in which abnormal pigmentations were improved by vitamin C. The symptoms of sclerodermia improved considerably in response to the combined administration of vitamin C, adrenal cortex extract and an extract of the anterior hypophysis. The relations of the abnormal pigmentation with other incretory glands and with the sympathetic nervous system are discussed.

Diagnostic Value of Trichophytin Reaction.—Knierer says that the intracutaneous trichophytin test is estimated differently by various authors. Opinions differ on the optimal degree of dilution of trichophytin, the interpretation of the skin reaction, the time required for the final evaluation and the diagnostic value. Because of this lack of agreement on the test, the author decided to study it on persons with various skin disorders and on persons without cutaneous disturbances. He tested 115 persons varying in age between 7 and 70 years. He used trichophytin dilutions of 1:200, 1:100, 1:50 and 1:10. In the final evaluation he considered the reactions that had been produced with the 1:50 dilution after a period of thirty-six hours. He gives tabular reports of the results of his tests and reaches the conclusion that, provided the test is employed with due criticism, it has some diagnostic value. However, it cannot be the only criterion in the differentiation between mycotic and nonmycotic disorders, for the test is positive in from 10 to 35 per cent of persons who are free from mycotic disorders, and it is negative in from 25 to 45 per cent of the patients who have a mycosis.

Wiener klinische Wochenschrift, Vienna

49: 65-96 (Jan. 17) 1936. Partial Index

Theoretical Foundations of Treatment of Diabetes. W. Falta.—p. 65.
Epilepsy as Problem and Its Relation to Therapy. O. Marburg.—p. 69.
Demonstration of Tubercle Bacilli in Blood. N. Kovács.—p. 72.
*Schridde's Cancer Hair and Its Significance for Diagnosis of Carcinoma. G. Frick and K. Meduna.—p. 76.
Prophylactic Use of Injectable Liver Extract. M. Landsberg.—p. 77.
Problem of Hypertension in Circulatory Organs. J. Pal.—p. 78.

Diagnostic Significance of Schridde's Cancer Hair.—Frick and Meduna point out that, although the cancer reactions have been given considerable attention in recent years, some of the secondary signs and symptoms have been largely disregarded. In this connection they call attention to Strümpell's observation that patients with cancer, particularly those with gastric carcinoma, even if they are of a rather advanced age, rarely have gray or white hair. Other observers have noted frequently a rather youthful appearance in patients with incipient carcinoma. Schridde studied the hair growth of patients with cancer and found that carcinoma patients have a smaller or larger number of deep black, coarse and dull hairs on the parts of the head that are exposed to light, particularly the temples. The diagnostic significance of this sign was denied by the majority of clinicians. The differences in the evaluation of Schridde's cancer hair induced the authors to investigate this sign in 300 patients of the department for internal diseases (a considerable proportion of whom had cancer) and in some healthy persons. They searched for Schridde's cancer hair at the frontal and temporal hair margins and also at the nape of the neck and found it in approximately 25 per cent of their

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patients. In comparing the relationship between the occurrence of the cancer hair and diagnosis of carcinoma they found that the described anomaly of hair growth was missing in none of the patients with cancer. It was observed chiefly on the frontal and temporal hair margins, but occasionally (mostly in men) at the nape of the neck. In a number of the cancer cases, the members of the family (siblings, children and grandchildren) were also examined and it was found that the anomaly of hair growth was present in a large number, occasionally even in rather young persons. The authors conclude that the absence of Schridde's cancer hair seems to be a sign for the absence of cancer or of a carcinomatous predisposition; however, the presence of this hair is no proof for the existence of a malignant tumor, but the probability of the development of a cancer seems to be greater in the persons who have this hair than in those who do not have it. They think that the demonstration of Schridde's cancer hair is of about the same value for the determination of a carcinomatous predisposition as is the knowledge of cases of cancer in the ancestry. In view of the fact that correct family anamnesis is difficult to obtain, an objective sign, such as cancer hair, is of considerable importance.

Zeitschrift für Tuberkulose, Leipzig

74: 241-320 (Jan.) 1936. Partial Index

Further Investigations on Efficiency of Roentgenoscopy and Roentgenography of Lungs. U. Schaare.—p. 241.
*Experiences with Segregation of Patients with Open Incurable Tuberculosis. Hanke.—p. 248.
Comparative Investigations on Dold's Urea Method for Demonstrating Tubercle Bacilli and on Antiformin Method of Uhlenhuth-Xylander. Lotte Homann.—p. 259.
*Occurrence of Bovine Tubercle Bacilli in Human Tuberculosis. E. Gróh.—p. 263.
Training and Further Education of Young Persons in Sanatoriums for Tuberculous Patients. H. Brügger.—p. 271.

Segregation of Patients with Open Incurable Tuberculosis.—Hanke advises the segregation of patients with open incurable tuberculosis in special institutes, in the interest of public welfare. He points out that it is the purpose and aim of the segregation of these patients to remove these disseminators of bacilli from healthy persons and thereby prevent the further spreading of tuberculosis. He relates his experiences in an asylum, in which fifty patients with open tuberculosis were taken care of. He considers suitable for residence in such an institute the patients who had a cirrhotic productive form of tuberculosis, are free from fever and are not bedridden. Patients with the exudative forms and with constant fever, however, should remain under hospital care. Among the patients who were admitted to the author's institute for segregation, he found some who were not incurable but quite amenable to surgical treatment. Some of these patients refused to submit to such treatment, but the author points out that it should be impressed on them that they have obligations toward their families as well as toward the public; that is, toward those who have to bear the burden of their support. This responsibility toward their family and the public, whom they expose to the danger of infection, should be impressed also on patients with open tuberculosis who have been segregated for some time but who then demand to be discharged in order to return to their families. The author thinks that, in order to overcome the resistance of some of these patients, it might become necessary for the state to intervene by means of a law for the compulsory segregation of patients with open incurable tuberculosis.

Occurrence of Bovine Bacilli in Human Tuberculosis.—Gróh describes his studies on thirty-seven patients with pulmonary tuberculosis, forty-eight with renal tuberculosis, five with testiprostatic tuberculosis, thirty-one with tuberculosis of bones and joints and some with other forms of tuberculosis, the total number being 149. He points out that in previous studies on the development of human tubercle bacilli he had found that in the majority the strains contained also those that he had seen in cultures obtained from tuberculous organs of cattle. This observation induced him to make further studies. Among his 149 cases he found only one in which bovine bacilli were not detectable, but in all of the remaining 148 cases he found the human as well as the bovine type of tubercle bacilli. He demonstrated this by microscopic studies as well as by the culture method. The relative quantity of the human and bovine bacilli differed in the various cases. In some there were many; that is, they were present in excess of the human type; in others the human and bovine types were present in about equal numbers, while in still others the bovine type was present in only small numbers. In some cases the presence of bovine bacilli was corroborated by animal experiments. The frequent concurrence of the bovine and human types of tubercle bacilli suggested to the author the possibility of a mutation of human into bovine forms or vice versa. He gave attention to this problem in his investigations but was unable to find corroborating evidence for a mutation.

Zentralblatt für Gynäkologie, Leipzig

60: 193-256 (Jan. 25) 1936

*Operations for Urinary Fistulas and for Urinary Incontinence. H. Martius.—p. 194.
Plastic Use of Ischiocavernosus Muscle According to Martius in Treatment of Incontinence. A. Strempel.—p. 205.
Use of Flap Method in Repairing Vesical Fistulas in Vaginal Vault. A. Mandelstamm.—p. 208.
Cervicovesical Fistula Operated on According to O. Küstner with Four Subsequent Spontaneous Deliveries. A. Strempel.—p. 211.
*Rare Forms of Micturition Disturbances in Women (Sclerosis of Sphincter, Urethral Stenosis). H. Friedrich.—p. 212.
Ascites in Nephropathia of Pregnancy. E. Junghans.—p. 217.

Operations for Urinary Fistulas and Incontinence.—Martius points out that recent studies on the closing mechanism of the bladder have shown that this mechanism is somewhat different from what has been hitherto believed. Careful studies on the floor of the bladder, proceeding from the inside out, disclosed muscle fibers arranged in loops; the sides of the loop pass along the anterior wall of the bladder and the curve passes posteriorly around the vesical orifice. After these fibers have been removed, a loop of muscle fibers running in the opposite direction becomes visible. The latter muscular loop was the only one that was formerly recognized; it was designated as sphincter trigonalis or sphincter urethrotrigonalis. The muscular loop mentioned first had been overlooked by the earlier students. The author gives a schematic diagram of the two muscular loops (lissosphincter loops), which together form the internal vesical sphincter, and shows that the involuntary closure of the female bladder is accomplished by the movement of the two muscular loops in opposite directions (pinchcock mechanism). He shows the importance of these lissosphincter loops in operations for the repair of injuries on the neck of the bladder and of congenital incontinence. He demonstrates that repair of the lissosphincter loop and the simultaneous grasping of the perivesical supporting tissue (the procedure designated by Stoeckel as the "direct muscle plastic") must be the foundation of all operations for urinary iucontinence and should never be neglected. The author indicates in a diagram all tissues that may serve as repair material in the correction of vesical fistulas and of urinary incontinence; namely, (1) the vesical wall with lissosphincter, (2) the perivesical supporting tissue with the smooth musculature, (3) the urogenital diaphragm with rhabdosphincter, (4) the levator ani muscle, (5) the bulbocavernosus flap, (6) the corpus or cervix uteri and (7) the rectus sheath with the pyramidal muscles. The author says that he himself generally utilizes the bulbocavernosus flap and he describes how this is done.

Rare Forms of Micturition Disturbances in Women.—The first case reported by Friedrich concerns a woman, aged 56. The difficulties with her bladder began seven years before. At first she had symptoms indicating cystitis. There were terminal pains at micturition, the urine was turbid and the last drops were often bloody. For the last several years it became constantly more difficult to void the bladder, and finally spontaneous evacuation was impossible so that catheterization had to be resorted to. In the course of time she learned that she could void her bladder if she introduced a finger into the vagina and pushed the anterior vaginal wall backward during micturition. When the patient first came under the author's observation, neither neurologic nor pelvic symptoms could be found that would explain the condition. However, since the cystoscopically determined so-called barrier formation reminded him of sphincteral sclerosis in men, he considered this possibility, although this condition was not known to occur in women. An operation was done on the basis of this probability diagnosis. It was found that the urethral sphincter was unusually narrow. It was decided to excise a wedge-shaped piece from

the posterior sphincteral lip; however, when it was found that only a thin layer of tissue separated the vaginal lumen from the neck of the bladder, it was decided to make the excision from the anterior sphincteral lip. After this the sphincteral ring was wider. With the exception of a severe vesical hemorrhage, the recovery was uneventful. Histologic examination of the excised portion disclosed sclerosis. The author thinks that the occurrence of sphincteral sclerosis in women proves indirectly for this disorder in men that such processes are not necessarily preceded by inflammatory processes in the prostate. The second case concerns a woman, aged 42, who had had intermittent disturbances of micturition for about twenty years. In the last two years the woman noted that she had to press harder in order to void the bladder. In the course of the examination it was found that the urethra was impassable for an ordinary catheter, but a thin one (12 Charrière) could be introduced into the bladder after an obstruction had been passed, which was located approximately in the middle of the urethra. After the stenosed portion of the urethra had been dilated, the disturbance in the micturition disappeared. The author points out that, although urethral stenosis is relatively frequent in men, it is rare in women.

Klinicheskaya Meditsina, Moscow

13: 1755-1920 (Dec.) 1935. Partial Index

Allergy. B. A. Egorov.—p. 1755.
Evaluation of Alcoholization of Intercostal Nerves as New Type of Collapse Therapy in Pulmonary Tuberculosis. M. M. Sheynin.—p. 1781.
*Pathogenesis of Gout. M. Ya. Nishnevich.—p. 1819.
*Diabetes and Pregnancy. E. Ya. Reznitskaya and P. I. Fomina.—p. 1832.
*Increased Reactivity to Insulin in Diabetic Patients Under Influence of High Doses of Insulin. V. G. Baranov.—p. 1838.

Pathogenesis of Gout.—According to Nishnevich, the etiologic pathogenesis of gout is polymorphous in character. It may be produced by any of the causes bringing about an alteration in the chemistry of the tissues and favoring precipitation and fixation of uric acid salts. Among such causes the author lists the various endocrinopathies and distinguishes a thyrotoxic, an ovarian and a pituitary form of gout. There exists a positive symbiogenesis between uric acid and sodium chloride, expressed by the fact that fixation of urates in tissues aids the mobilization of sodium chloride. Other elements, such as cholesterol, play a part in the phenomenon. Because of a close relationship between the water and the chlorine exchange it is necessary in the study of symbiogenesis in gout to take into account the water balance. Hypo-uricemia and hypo-uricuria rather than hyperuricemia and hyperuricuria are characteristic of a gouty condition. The amount of uric acid in the blood increases with the proper treatment and improvement in the basic disease and leads to hyperuricuria.

Diabetes and Pregnancy.—Reznitskaya and Fomina state that the association of diabetes with pregnancy has been seen with greater frequency since the introduction of insulin. A normal course and a favorable prognosis for mother and child are made possible by the employment of rational therapy. In some of the pregnant diabetic patients an increased sugar tolerance was noted in the second half of gestation. This is possibly due to the functioning of the pancreas of the fetus. Hemorrhages toward the end of gestation and after delivery are frequent in diabetic women and may be explained by the increased permeability of the vascular walls. Stillbirths, overweight fetuses and hydramnion are relatively frequent. The more suitable diet is one rich in carbohydrates and poor in fats. Rational insulin therapy is well borne. Cases of glycosuria and of renal diabetes do not require insulin and are to be treated by moderate limitation in carbohydrate intake. Their course of pregnancy, labor and postpartum period run a normal course. Diabetes mellitus, even in its grave form, is not an absolute indication for artificial interruption of pregnancy, provided the patient is properly treated and controlled (dispensary observation). As a prophylaxis the authors stress repeated examinations of twenty-four hour specimens of urine for sugar and the study of blood curves in cases of glycosuria.

Increased Reactivity to Insulin Under Influence of High Doses.—Baranov states that there is an increased reactivity to insulin if the patient has been treated with insulin doses sufficiently high to keep his blood sugar content low (below 130 Gm.) during the day. This increased sensitiveness to insulin is manifested by hypoglycemic curves for some time after the administration of smaller doses. This fact permits lowering of insulin dosage with a simultaneous increase in the quantity of carbohydrates even in the graver cases of diabetes. The author has taken advantage of this fact to simplify the insulin therapy when its continued use is indicated and to terminate it in a number of milder cases. The so-called acquired tolerance to insulin probably does not exist and is to be charged to improper methods of therapy.

Norsk Magasin for Lægevidenskapen, Oslo

97: 1-192 (Jan.) 1936

Blind Passages of Male Urethra: Particular Reference to Morgagni's Lacunae and to Examination and Treatment by Aid of Two-Bladed Urethral Speculum. H. C. Gjessing.—p. 1.
Granulocytopenia Produced Artificially by Aminopyrine (Bayer): Case. J. Kloster.—p. 25.
*Triboulet Reaction in Patients Having Clinically Normal Intestine. O. E. Hallberg.—p. 32.
Continued Investigations on Possible Antagonistic Relation Between Senile Cataract and Haab's Senile Macular Changes. H. G. A. Gjessing.—p. 37.
Clinical Symptoms and Treatment of Ureteral Calculus. F. Rosher.—p. 51.

Triboulet Reaction in Patients Having Clinically Normal Intestine.—Hallberg found a positive Triboulet reaction in ninety-five, or 56.89 per cent, of 167 patients without clinical evidence of disturbances of the intestinal tract and concludes that, for the present, the diagnosis of intestinal tuberculosis must depend on clinical and roentgenologic results.

Supplement 1-112 (Jan.) 1936

*Clinical Experiences with Hypernephromas from 1913 to 1933 on Basis of Thirty-Seven Hypernephromas of Kidney and One Hypernephroma of Liver. P. Bull.—p. 1.

Experiences with Hypernephromas of Kidney and Liver.—Bull says that, while hypernephromas are highly malignant, the prognosis is not always hopeless even with grave complications. The only effective treatment is removal of the affected kidney as early as possible. Radium or roentgen treatment attempted in some of his cases gave no results. Nephrectomy was done in twenty-six cases (in twenty extraperitoneal, in six transperitoneal), with two deaths from operation, one from pulmonary embolus about six hours after operation and the other from uremia five days after operation. One patient presenting hypernephroma complicated with pyonephrosis died fifteen hours after pyelography (22 cc. of a 25 per cent solution of sodium bromide). Of twenty-four patients, eleven, or 45.87 per cent, lived more than three years after nephrectomy (excluding the two operative deaths, eleven out of twenty-two, or 50 per cent). Of the seven, or 31.87 per cent, without recurrence, five are living from three and one-half to thirteen years after operation and two died seven and four and two-thirds years, respectively, after operation. The thirteen nephrectomized patients who died from recurrence lived an average of three years after the first symptom, and the ten who were not operated on an average of about two years. Hematuria alone was the first symptom in 30 per cent of the cases; hematuria with pain, in 30 per cent. The author urges the necessity of pyelography in obscure hematurias and in hematurias of clearly renal origin. In a woman having intermittent fever of unknown cause for seven months, necropsy revealed a hypernephroma of the kidney. In another instance bone metastasis was the first symptom; necropsy two years later showed a hypernephroma the size of an egg, with metastases. While the prognosis seems to depend partly on the size of the tumor, the large hemorrhagic cysts are less malignant than the usual hypernephromas, and size alone does not contraindicate operation. One patient, with local recurrence, is alive twelve years after removal of a cystic tumor weighing 10.7 Kg., with characteristic hypernephroma only at the hilus. A tumor thrombus in the renal vein or vena cava increases the gravity of the prognosis. Atypical hypernephromas are apparently more malignant than the typical. Solitary metastasis may appear and long continue solitary; such metastases, especially in the bone, should be extirpated if radical removal is possible. Full description of the thirty-seven cases is given, together with report of a case of atypical hypernephroma of the liver extirpated from the right lobe of the liver in 1934.

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